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RENESAS

User's Manual

RX850V4 Ver. 4.22

Real-Time Operating System

Task Debugger

Target Tool
Task Debugger Ver.4.22 for RX850V4

Document No. U16811EJ2V0UM00 (2nd edition)
Date Published March 2007 CP(K)

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INTRODUCTION

Readers

This manual is intended for users who design and develop application systems using V850 microcontrollers products.

Purpose

This manual is intended for users to understand the functions of the Task debugger Ver.4.22 for RX850V4 described the organization listed below.

Organization

This manual consists of the following major sections.

- General
- Installation
- Starting and exiting
- RX850V4 functions
- Window reference
- Error messages

How to read this manual

It is assumed that the readers of this manual have general knowledge in the fields of electrical engineering, logic circuits, microcontrollers, C language, and assemblers.

To understand the hardware functions of the V850 microcontrollers
→ Refer to the **User's Manual Hardware** of each product.

To understand the instruction functions of the V850 microcontrollers
→ Refer to the **V850ES Architecture User's Manual (U15943E) or V850E1 Architecture User's Manual (U14559E)**.

Conventions

Data significance:	Higher digits on the left and lower digits on the right
Note:	Footnote for item marked with **Note** in the text
Caution:	Information requiring particular attention
Remark:	Supplementary information
Numerical representation:	Binary...XXXX or XXXXB
	Decimal...XXXX
	Hexadecimal...0xXXXX

Prefixes indicating power of 2 (address space and memory capacity):

K (kilo)	$2^{10} = 1024$
M (mega)	$2^{20} = 1024^2$

Related Documents Read this manual together with the following documents.
The related documents indicated in this publication may include preliminary versions.
However, preliminary versions are not marked as such.

Documents related to development tools (user's manuals)

Document Name		Document Number
CA850 Ver. 3.00 C Compiler Package	Operation	U17293E
	C Language	U17291E
	Assembly Language	U17292E
	Link Directives	U17294E
ID850 Ver. 3.00 Integrated Debugger	Operation	U17358E
ID850NW Ver. 3.00, 3.10 Integrated Debugger	Operation	U17369E
ID850NWC Ver. 2.51 Integrated Debugger	Operation	U16525E
ID850QB Ver. 3.20 Integrated Debugger	Operation	U17964E
SM+ System Simulator	Operation	U18010E
	User Open Interface	U18212E
SM850 Ver. 2.50 System Simulator	Operation	U16218E
SM850 Ver. 2.00 or later System Simulator	External Part User Open Interface Specifications	U14873E
RX850V4 Ver. 4.22 Real-Time OS	Functionalities	U16643E
	Internal Structure	U16644E
	Task Debugger	This manual
AZ850V4 Ver. 4.10 System Performance Analyzer		U17093E
PG-FP4 Flash Memory Programmer		U15260E
TW850 Ver. 2.00 Performance Analysis Tuning Tool		U17421E
PM+ Ver. 6.20 Project Manager		U17990E

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CHAPTER 1 GENERAL

1. 1 Overview

The RD850V4 (the task debugger for the RX850V4 is referred to as the RD850V4 in this user's manual) expands debugger functions by connecting with a debugger using an RTOS debugging interface module (RIM).

The RD850V4 provides the following functions.

- The real-time OS resource display function
  Acquires the statuses of OS resources (such as tasks and semaphores) managed by the RX850V4 automatically and displays their information when a break occurs at a certain point of a load module running in the debugger.
- The real-time OS status change function
  Changes the OS resource statuses (current values).
  This function is available only when the RD850V4 is used together with a debugger such as the ID850 (including ID850NW, ID850QB, SM850, SM+ for V850).

The RD850V4 acquires various kinds of information via communication with the debugger and RIM. When using the RD850V4, the debugger must therefore run at the same time.

When acquiring the OS resource statuses or changing the statuses, the following conditions must be satisfied.

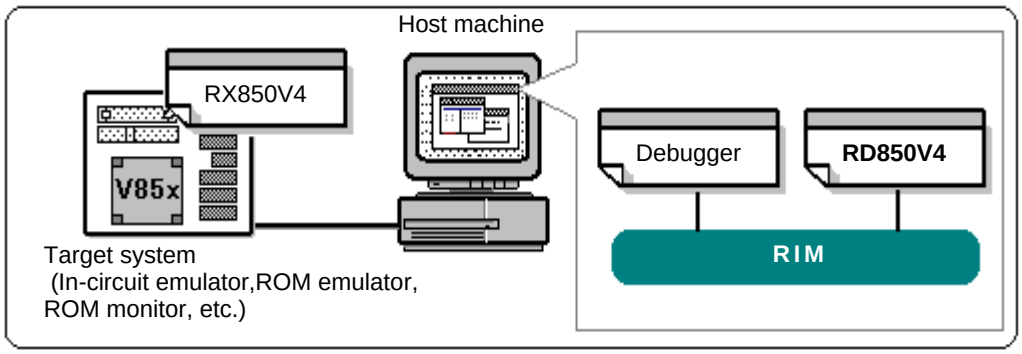
- A load module linked with the RX850V4 has been downloaded to the debugger.
- RX850V4 system initialization processing has been completed.

1. 2 System Configuration

The RD850V4 connects with the debugger using RIM and extends the debugger functions.

The system configuration of the RD850V4 is as follows:

Figure 1-1 System Configuration



1. 3 Operating Environment

To use the RD850V4, an environment in which a debugger operates is required.

Since the RD850V4 is an application for .NET Framework, Microsoft® .NET Framework must be installed separately, from the dotnet1.1 folder in the supplied CD-ROM.

For the latest information on the .NET Framework, refer to http://www.microsoft.com/japan/msdn/netframework/.

- Host machine

  The machine by which the target OS operates.

  Windows® 2000, Windows XP Home Edition, Windows XP Professional

  [Caution] It is recommended that the newest Service Pack be installed in any of the above OSs.

- Software
  - Debugger

    Debugger supporting TIP

    ID850, ID850NW, ID850QB, SM850, SM+ for V850 (from NEC Electronics)

    Multi® 2000 (from Green Hills® Software, Inc.)
  - Execution environment

    Microsoft .NET Framework V1.1 SP1 or later
  - Real-time OS

    RX850V4 V4.20 or later (from NEC Electronics)

CHAPTER 2 INSTALLATION

2. 1 Installing RD850V4

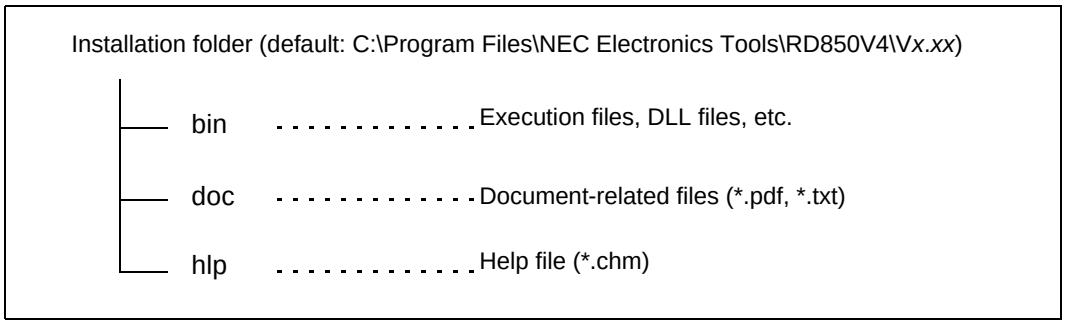
The RD850V4 is included with the real-time OS package (RX850V4). When the RX850V4 is installed, the RD850V4 can be also installed if necessary, as it is supplied in the same package.

For the details on how to install the RX850V4, refer to the RX850V4 user's manual.

2. 2 Folder Configuration

After installing the RD850V4, the configuration of the folders related to the RD850V4 is as follows:

Figure 2-1 Folder Configuration



A shortcut for the RD850V4 (default: [Program] ->[NEC Electronics Tools] -> [RD850V4] -> [V*x.xx*] -> [RD850V4 V*x.xx*]) is automatically added to the Windows start menu.

2. 3 Uninstalling RD850V4

Uninstall the RD850V4 with the following procedure.

(1) Start up Windows.

(2) Select "Add/Remove Programs" ("Add or Remove Programs" in the case of Windows XP) from the control panel.

(3) Select items to be uninstalled.

- RD850V4 V850 Task Debugger V*x.xx*
- RD850V4 (V*x.xx*) documents

(4) Perform uninstallation according to the message displayed.

CHAPTER 3 STARTING AND EXITING

3. 1 Starting

Select Windows Start menu -> [Programs] -> [NEC Electronics Tools] -> [RD850V4] -> [V*x.xx*] -> [RD850V4 V*x.xx*] (default); the RD850V4 then starts.

When the RD850V4 is started, the Main window shown below will be displayed and a tray icon will be displayed in the Windows notification area (task tray) (refer to "5. 2 Tray Icon").

Figure 3-1 RD850V4 Startup Screen

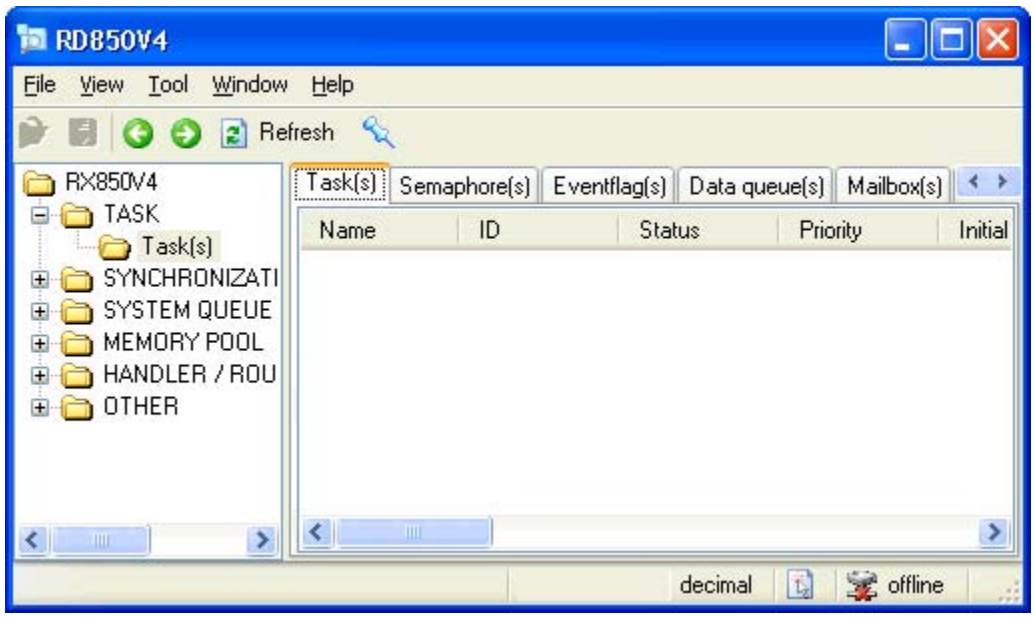


Figure 3-2 Tray Icon of RD850V4

[Caution 1] The RD850V4 acquires various kinds of information via communication with the debugger and RIM. When using the RD850V4, the debugger must therefore run at the same time.

[Caution 2] Multiple RD850V4 programs cannot run at a time. If the RD850V4 has already been started, the RD850V4 window is displayed in the front.

[Caution 3] When debugging programs by using PM+, the RD850V4 can be started using the PM+ menu bar or icon.

3. 2 Exiting

To exit the RD850V4, select [File] menu -> [Exit] item on the Main window.

CHAPTER 4 RD850V4 FUNCTIONS

4. 1 The Real-time OS Resource Display Function

This is the function that acquires the statuses of OS resources (such as tasks and semaphores) managed by the RX850V4 automatically and displays their information.

Radix notation of the displayed values can be switched between decimal and hexadecimal, in the [Options] dialog box.

The status of each object is displayed in the following windows.

- Main window

  This widnow is the first window to be opened after RD850V4 is started.

  To use RD850V4, start operational from this window.

- Properties window

  This window is opened by double-clicking an arbitrary object displayed in the List view area in the Main window, and displays detailed information on the selected object.

  Among the items displayed, the current value of specific items can be changed in this window.

  The following property windows are available for each target object. (The "property window" is the generic name of these windows.)

  - [Task(s)] window
  - [Semaphore(s)] window
  - [Eventflag(s)] window
  - [Data queue(s)] window
  - [Mailbox(s)] window
  - [Mutex(s)] window
  - [Timer queue] window
  - [Ready queue(s)] window
  - [Fixed-sized memory pool(s)] window
  - [Variable-sized memory pool(s)] window
  - [Cyclic handler(s)] window
  - [CPU exception handler(s)] window
  - [Interrupt handler(s)] window
  - [Extended service call routine(s)] window
  - [Idle routine] window
  - [System] window
  - [Max value] window
  - [Memory area(s)] window

4. 2 The Real-time OS Status Change Function

This is the function that changes the OS resource statuses (current values).

This function is available only when the RD850V4 is used together with a debugger such as the ID850 (including ID850NW, ID850QB, SM850, SM+ for V850).

The following property windows have this status change function.

- [Task(s)] window
- [Semaphore(s)] window
- [Eventflag(s)] window
- [Mutex(s)] window
- [Ready queue(s)] window
- [Cyclic handler(s)] window
- [System] window

4. 2. 1 Conditions required for changing status

The following conditions must be satisfied when changing the OS resource statuses (current values) in a property window shown in "4. 2 The Real-time OS Status Change Function".

- The current system status is the CPU unlocked state.
- Service calls required for changing the object status are linked with the load module.
- The debugger used in combination with the RD850V4 is any of ID850, ID850NW, ID850QB, SM850, and SM+ for V850.

(1) System status type

Basically, the object status change function is not available when the current system status is the CPU locked state. If the current system status is the CPU locked state, only the "CPU locked state" item in the [System] window can be changed.

When using this function, check that "False" is displayed as the value of "CPU locked state" in the [System] window.

(2) Service calls required for changing object status

The object status change function is achieved by issuing RX850V4 service calls from the RD850V4. When using this function, service calls to be used must therefore be linked with the load module in advance.

The following lists the service calls required for using this function in each property window.

Table 4-1 Service Calls Required for Changing Object Status

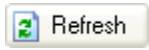
Property Windo Name	Service Call Name
[Task(s)] window	chg_pri, sus_tsk, rsm_tsk, wup_tsk, can_wup, act_tsk, can_act, rel_wai, ter_tsk
[Semaphore(s)] window	sig_sem, pol_sem
[Eventflag(s)] window	set_flg, clr_flg
[Mutex(s)] window	unl_mtx
[Ready queue(s)] window	rot_rdq
[Cyclic handler(s)] window	sta_cyc, stp_cyc
[System] window	ena_dsp, dis_dsp, loc_cpu, unl_cpu

(3) Debugger is used with RD850V4

The object status change function is available only when the RD850V4 is used together with a debugger such as the ID850 (including ID850NW, ID850QB, SM850, SM+ for V850).

4. 2. 2 Caution

(1) Reflecting the changed status

Change to the current values is not reflected just by inputting values to the relevant text box. To update the current value, it is necessary to click the  button or select the [View] menu -> [Refresh].

(2) Rules for inputting to text boxes

The rules for inputting to status change text boxes are as follows.

Table 4-2 Rules for Inputting to Text Boxes

Radix Notation	Input Rule
Hexadecimal	Must start with "0x" and include one or more alphanumeric characters from 0 to 9 or a to f. The alphabetic characters are not case-sensitive.
Decimal	Include one or more numeric values from 0 to 9.

4. 3 Mode Setting for Each Window and Interrelationships

The following two modes are available in each RD850V4 window. Change to the appropriate mode in the process of debugging.

The default mode when the RD850V4 is started can be changed in the [Options] dialog box.

- Status update mode

  When a break occurs in the connected debugger, the RD850V4 automatically sends a notice to all of the windows currently open, to prompt updating of information. The status update mode is used to set whether to update the displayed contents automatically. This mode can be set individually to the Main window and all of the property windows currently open.

  The status update mode has the following two types.

Table 4-3 Status Update Modes

Mode	Function and Setting Method
Automatic update	Updates the displayed contents automatically when a break occurs in the debugger (default). This mode is set by turning off [Update Manually] in the [View] menu.
Manual update	Does not update the displayed contents when a break occurs in the debugger. This mode is set by turning on [Update Manually] in the [View] menu. To update the displayed contents, execute [Refresh] in the [View] menu.

- Window discard mode

  The window discard mode is used to set whether to close a property window automatically when an object subject to be displayed in the property window is deleted. This mode can be set individually to all of the property windows currently open.

  The window discard mode has the following two types.

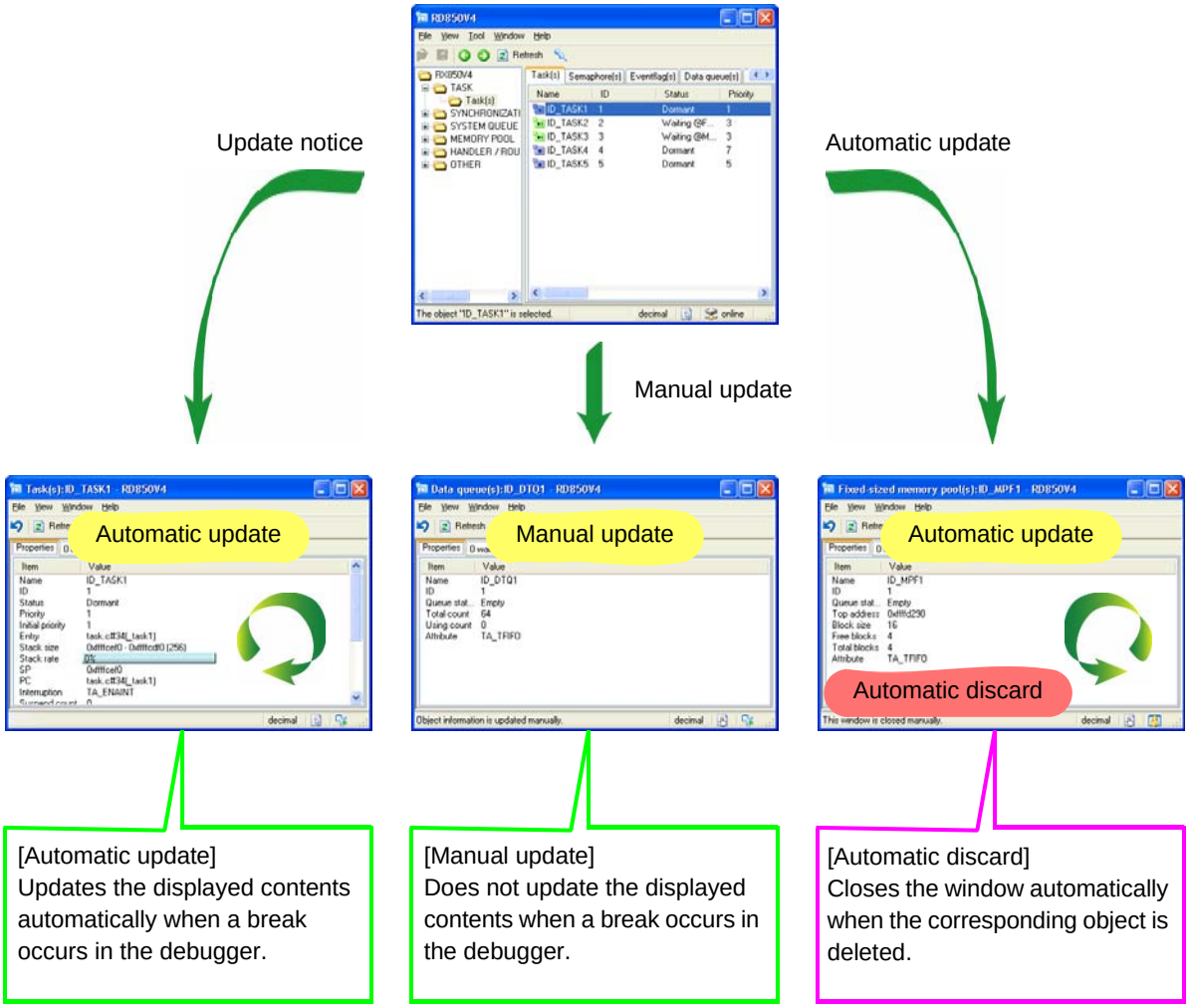
Table 4-4 Window Discard Mode

Mode	Function and Setting Method
Automatic discard	Closes the window automatically when the corresponding object is deleted (default). This mode is set by turning off [Close Manually] in the [Window] menu.
Manual discard	Does not close the window even if the corresponding object is deleted. This mode is set by turning on [Close Manually] in the [Window] menu.

[Caution] Since the RX850V4 does not have an object delete function, property windows are not closed even if the automatic discard mode is set.

The window interrelationships that are changed by mode setting are as follows.

Figure 4-1 Window Behavior Caused by Mode Setting



CHAPTER 5 WINDOW REFERENCE

5. 1 Outline of Windows and Dialog Boxes of RD850V4

The following shows the list of windows and dialog boxes of the RD850V4.

Table 5-1 List of Windows and Dialog Boxes of RD850V4

Window/Dialog Box Name	Function
Main window	This widnow is the first window to be opened after RD850V4 is started. To use RD850V4, start operational from this window.
Properties window	This window is opened by double-clicking an arbitrary object displayed in the List view area of the Main window, and displays detailed information on the selected object. Among the items displayed, the current value of specific items can be changed in this window. The following property windows are available for each target object. (The "property window" is the generic name of these windows.) - [Task(s)] window - [Semaphore(s)] window - [Eventflag(s)] window - [Data queue(s)] window - [Mailbox(s)] window - [Mutex(s)] window - [Timer queue] window - [Ready queue(s)] window - [Fixed-sized memory pool(s)] window - [Variable-sized memory pool(s)] window - [Cyclic handler(s)] window - [CPU exception handler(s)] window - [Interrupt handler(s)] window - [Extended service call routine(s)] window - [Idle routine] window - [System] window - [Max value] window - [Memory area(s)] window
[Options] dialog box	Sets the basic RD850V4 operation and display formats.
[About RD850V4] dialog box	Displays the information about the RD850V4.

5. 2 Tray Icon

The RD850V4 displays the following tray icon in the Windows status area (taskbar).

Figure 5-1 Tray Icon of RD850V4

The tray icon supports manipulation for the RD850V4 Main window and property windows. It displays the following context menus by right-clicking the tray icon.

Figure 5-2 Context Menu of Tray Icon

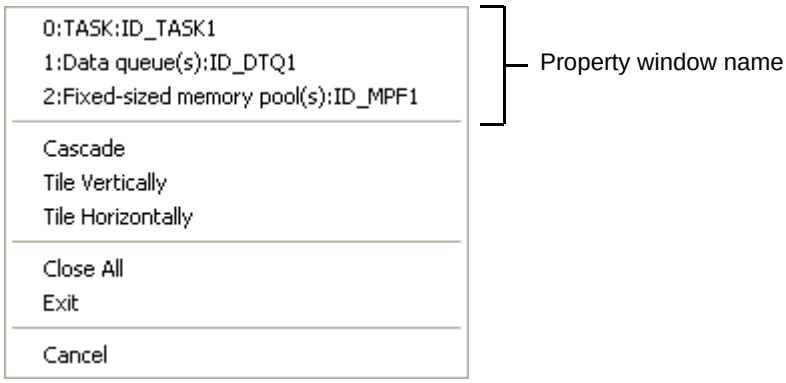


Table 5-2 Items Displayed in Context Menu: Tray Icon

Item	Function
Property window name	Brings the selected property window to the front. All of the property windows currently open are displayed in this field.
Cascade	Specifies whether to display all the property windows overlapped. By turning on this menu, all the property windows are displayed being overlapped by gradually shifting their X and Y coordinates at constant intervals, based on the coordinates of the Main window.
Tile Vertically	Specifies whether to arrange all the property windows vertically. By turning on this menu, all the property windows are displayed being arranged vertically in the entire screen display area.
Tile Horizontally	Specifies whether to arrange all the property windows horizontally. By turning on this menu, all the property windows are displayed being arranged horizontally in the entire screen display area.
Close All	Closes all of the property windows.
Exit	Terminates the RD850V4.
Cancel	Cancels the manipulation.

5. 3 Explanation of Windows and Dialog Boxes

This section describes each window/dialog box of the RD850V4 as follows:

Window/Dialog box name

Show in the frame are the window or dialog box name.

In addition, the display image of the window or dialog box, functional outline, and how open the window or dialog box are also explained.

Explanation of each area

Explains items to be set to or displayed in each area of the window or dialog box.

Menu bar

List the menu items and explains the operation of each menu item.

Tool bar

Explains the operation of each button on the tool bar.

Function buttons

Explains the operation of each function button in the window or dialog box.

Caution

Enumerates points that require care during operation in the window or dialog box.

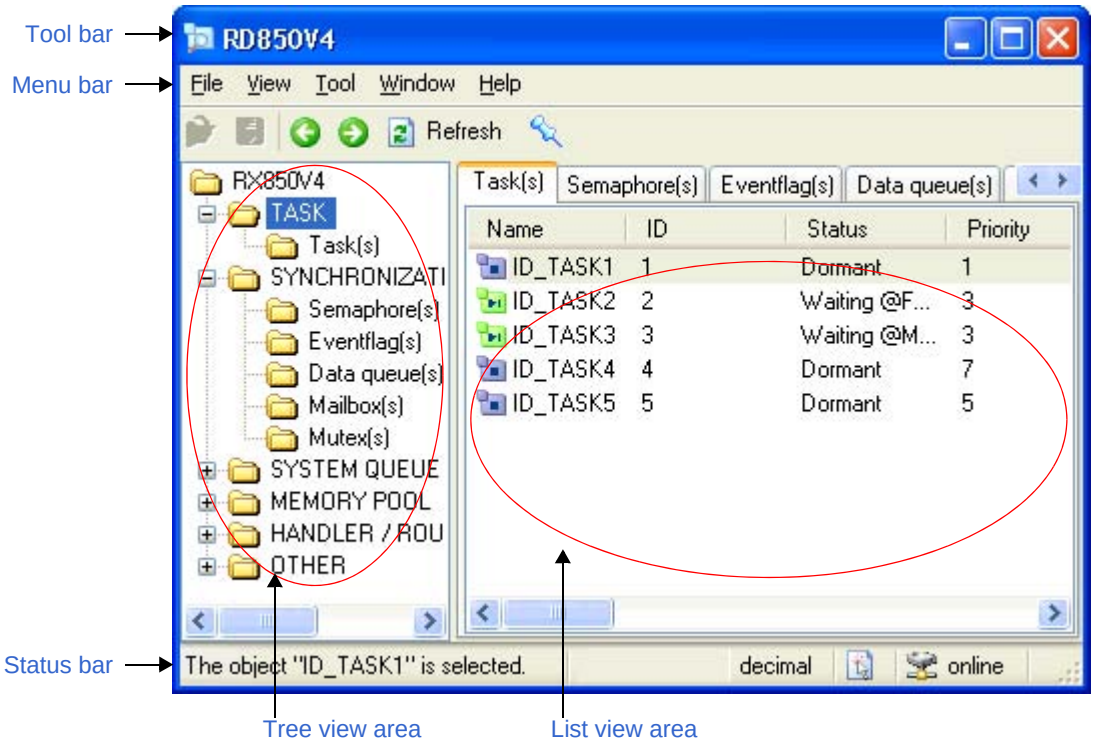
Other

Explains the special functions of the window or dialog box, such as the operating method.

Main window

This widnow is the first window to be opened after RD850V4 is started.
To use RD850V4, start operational from this window.

Figure 5-3 Main Window: Select [View] Menu -> [Details] Item



This section describes the following items:

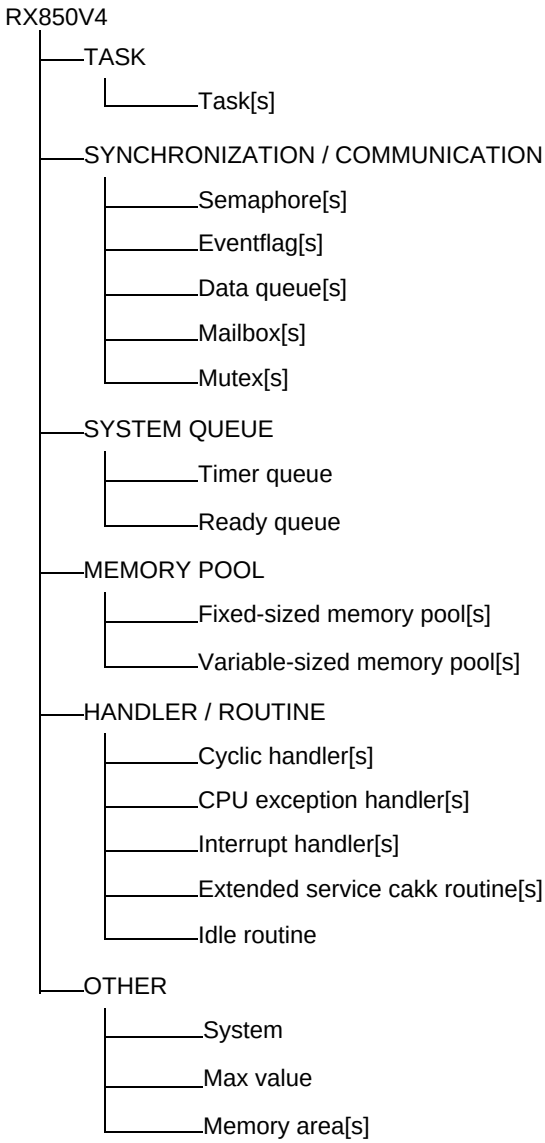
- Explanation of each area
- Menu bar
- Tool bar
- Status bar

Explanation of each area

(a) Tree view area

OS resources included in a load module are expanded into tree form.
The plus/minus sign on the left side of icons indicate that the resources which belong to the selected element are in an expanded/collapsed structure. The resources are expanded by clicking the plus sign, and collapsed by clicking the minus sign. (Whether to display the plus/minus sign can be specified in the [TREE] group in the [Options] dialog box).
By clicking one of the resources, a list of objects created in the selected resource is displayed in the List view area.
The resource structure in the Tree view area is as follows.

Figure 5-4 Tree View Area



(b) List view area

Displays a list of objects created in the resource selected in the Tree view area.
The focused resource can also be changed by selecting a tab in this area. (The tab operates in conjunction with the Tree view area.)
When an arbitrary object displayed in the list is double-clicked, a Properties window (refer to "4. 1 The Real-time OS Resource Display Function"), which displays the detailed information on the selected object, will be opened.
Multiple Properties window screens can be opened at the same time.

The display format in this area can be switched by selecting items in the [View] menu, as shown below.
The arrow shown in each figure indicates the object arrangement order.

Figure 5-5 Select [View] Menu -> [Large Icons] Item

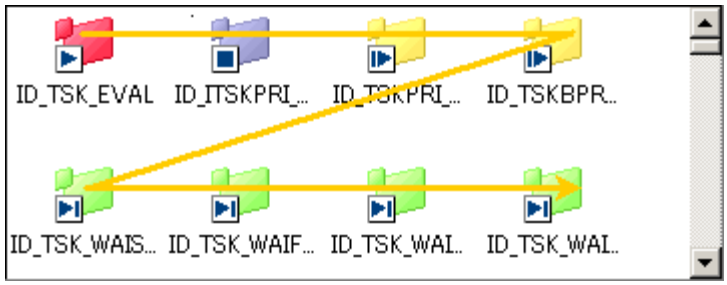


Figure 5-6 Select [View] Menu -> [Small Icons] Item

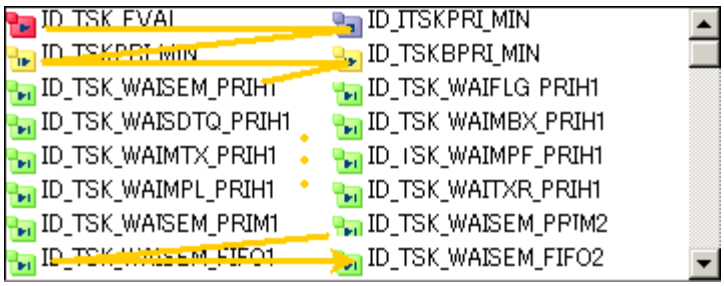
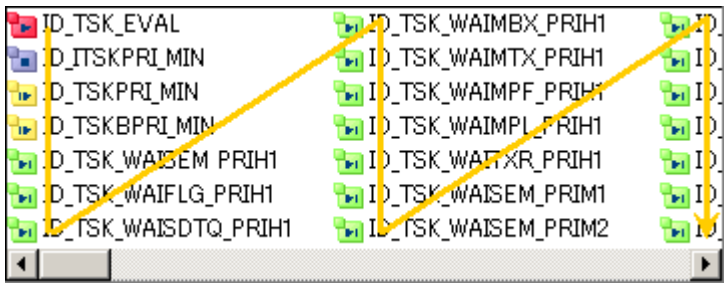


Figure 5-7 Select [View] Menu -> [List] Item



If [Details] is selected in the [View] menu, the listed items can be sorted by clicking the column header of the desired item.
At this time, the sort method is toggled as "descending order -> ascending order -> not sorted".

[Caution 1] If the object names to be displayed in the list view area cannot be acquired, the RD850V4 alternately uses symbol names if symbol information is included in the load module, or IDs if symbol information is not included in the load module.

[Caution 2] By sliding the boundary between the tree view area and list view area, their display area sizes can be changed.
If the window is resized, however, horizontal increase or decrease is only reflected to the list view area.

Icons that indicate object names vary depending on the type of the resource selected in the tree view area and its status, as shown below.

Table 5-3 Icon Types Used for Task Information

Large Icons	Small Icons	Task Status
		DORMANT state
		READY state
		RUNNING state
		WAITING state
		SUSPENDED state
		WAITING-SUSPENDED state
		State out of RX850V4 control

Table 5-4 Icon Types Used for Semaphore Information

Large Icons	Small Icons	Semaphore Wait Queue Status
		There are no tasks waiting (Empty)
		There is a task waiting (Waiting Tasks)

Table 5-5 Icon Types Used for Eventflag Information

Large Icons	Small Icons	Eventflag Wait Queue Status
		There are no tasks waiting (Empty)
		There is a task waiting (Waiting Tasks)

Table 5-6 Icon Types Used for Data Queue Information

Large Icons	Small Icons	Data Queue Wait Queue Status
		There are no tasks waiting (Empty)
		There is a task waiting for transmission (Waiting Transmissions)
		There is a task waiting for reception (Waiting Receptions)

Table 5-7 Icon Types Used for Mailbox Information

Large Icons	Small Icons	Mailbox Wait Queue Status
		There are no tasks waiting and there are no messages (Empty)
		There is a task waiting for reception (Waiting Tasks)
		There is a message waiting for reception (Waiting Messages)

Table 5-8 Icon Types Used for Mutex Information

Large Icons	Small Icons	Mutex Wait Queue Status
		There are no tasks waiting (Empty)
		There is a task waiting (Waiting Tasks)

Table 5-9 Icon Types Used for Timer Queue Information

Large Icons	Small Icons	Status
		-

Table 5-10 Icon Types Used for Ready Queue Information

Large Icons	Small Icons	Status
		-

Table 5-11 Icon Types Used for Ready Queue Information

Large Icons	Small Icons	Fixed-Sized Memory Pool Wait Queue Status
		There are no tasks waiting (Empty)
		There is a task waiting (Waiting Tasks)

Table 5-12 Icon Types Used for Variable-Sized Memory Pool Queue Information

Large Icons	Small Icons	Variable-Sized Memory Pool Wait Queue Status
		There are no tasks waiting (Empty)
		There is a task waiting (Waiting Tasks)

Table 5-13 Icon Types Used for Cyclic Handler Information

Large Icons	Small Icons	Cyclic Handler Status
		Operational state
		Non-operational state

Table 5-14 Icon Types Used for CPU Exception Handler Information

Large Icons	Small Icons	Status
		-

Table 5-15 Icon Types Used for Interrupt Handler Information

Large Icons	Small Icons	Status
		-

Table 5-16 Icon Types Used for Extended Service Call Information

Large Icons	Small Icons	Status
		-

Table 5-17 Icon Types Used for Idle Routine Information

Large Icons	Small Icons	Status
		-

Table 5-18 Icon Types Used for System Information

Large Icons	Small Icons	Status
		-

Table 5-19 Icon Types Used for Maximum Value Information

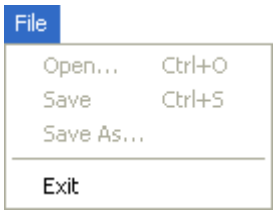
Large Icons	Small Icons	Status
		-

Table 5-20 Icon Types Used for Memory Area Information

Large Icons	Small Icons	Status
		-

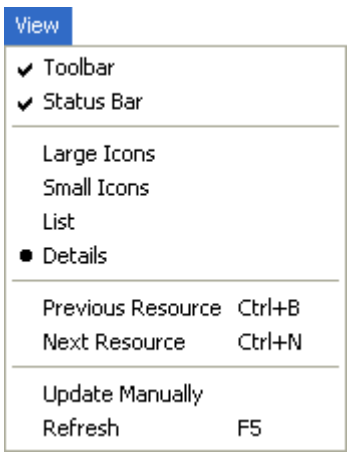
Menu bar

(a) [File] menu



Open...	This version of the RD850V4 does not support this function.
Save	This version of the RD850V4 does not support this function.
Save As...	This version of the RD850V4 does not support this function.
Exit	Terminates the RD850V4.

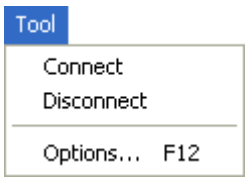
(b) [View] menu



Toolbar	Switches displaying and hiding the toolbar. The toolbar is displayed by turning on this item.
Status Bar	Switches displaying and hiding the status bar. The status bar is displayed by turning on this item.
Large Icons	Specifies the list view area display format. Objects are displayed with large icons by selecting this item.
Small Icons	Specifies the list view area display format. Objects are displayed with small icons by selecting this item.
List	Specifies the list view area display format. Objects are displayed in the list format by selecting this item.

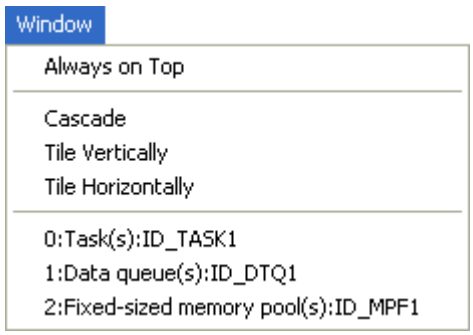
Details	Specifies the list view area display format. Detailed information is displayed for the object list by selecting this item.
Previous Resource	Select the previous resource. Same operation as  button on the toolbar.
Next Resource	Select the next resource. Same operation as  button on the toolbar.
Update Manually	Switches the status update mode (automatic update or manual update) in the window. By turning on this menu, manual update (the displayed contents are not updated when a break occur is the debugger) is set. It can also be switched by clicking the icon on the Status bar ( / ).
Refresh	Updates the list view area. Same operation as  button on the toolbar.

(c) [Tool] menu



Connect	Connects the RD850V4 and the debugger.
Disconnect	Disconnects the RD850V4 and the debugger.
Options...	Opens the [Options] dialog box.

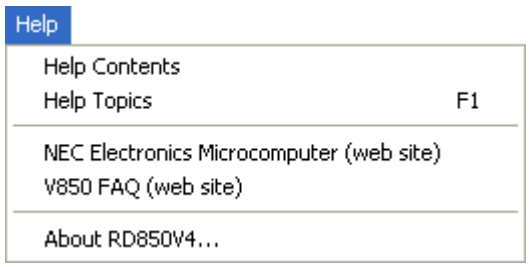
(d) [Window] menu



Always on Top	Specifies whether to fix the window display in the front. The window is always displayed in the front by turning on this item. Same operation as  button on the toolbar.
Cascade	Specifies whether to display all the property windows overlapped. By checking this item, all the property windows are displayed being overlapped by gradually shifting their X and Y coordinates at constant intervals, based on the coordinates of the Main window.

Tile Vertically	Specifies whether to arrange all the property windows vertically. By checking this item, all the property windows are displayed being arranged vertically in the entire screen display area.
Tile Horizontally	Specifies whether to arrange all the property windows horizontally. By checking this item, all the property windows are displayed being arranged horizontally in the entire screen display area.
Property window name	Brings the selected property window to the front. All of the property windows currently open are displayed in this field.

(e) [Help] menu



Help Contents	Opens the RD850V4 online help.
Help Topics	Searches for topics in the RD850V4 online help.
NEC Electronics Microcomputer (web site)	Opens the Web site for NEC Electronics microcontrollers. The Web site can be opened only when the host machine is connected to the Internet.
V850 FAQ (web site)	Opens the Web site for V850 microcontroller tool FAQ. The Web site can be opened only when the host machine is connected to the Internet.
About RD850V4...	Opens the [About RD850V4] dialog box.

Tool bar

This is a button group that enables execution of frequently used commands via a single click.

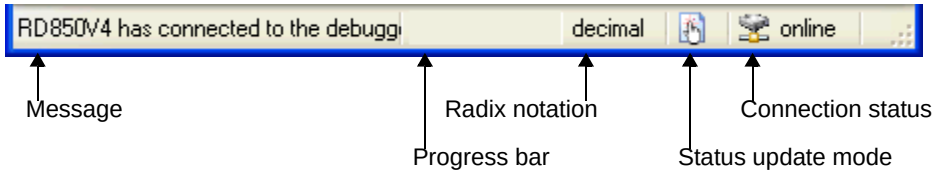
Table 5-21 Tool Bar of Main Window

Button	Function
	This version of the RD850V4 does not support this function.
	This version of the RD850V4 does not support this function.
	Select the previous resource. Same operation as [View] menu -> [Previous Resource] item.
	Select the next resource. Same operation as [View] menu -> [Next Resource] item.
	Refresh the contents of the current list. Same operation as [View] menu -> [Refresh] item.
	Keep this window always on top. Same operation as [Window] menu -> [Always on Top] item.

Status bar

The following shows the status bar in this window.

Figure 5-8 Status Bar of Main Window



The functions of each item are as follows.

Table 5-22 Items Displayed on Status Bar: Main Window

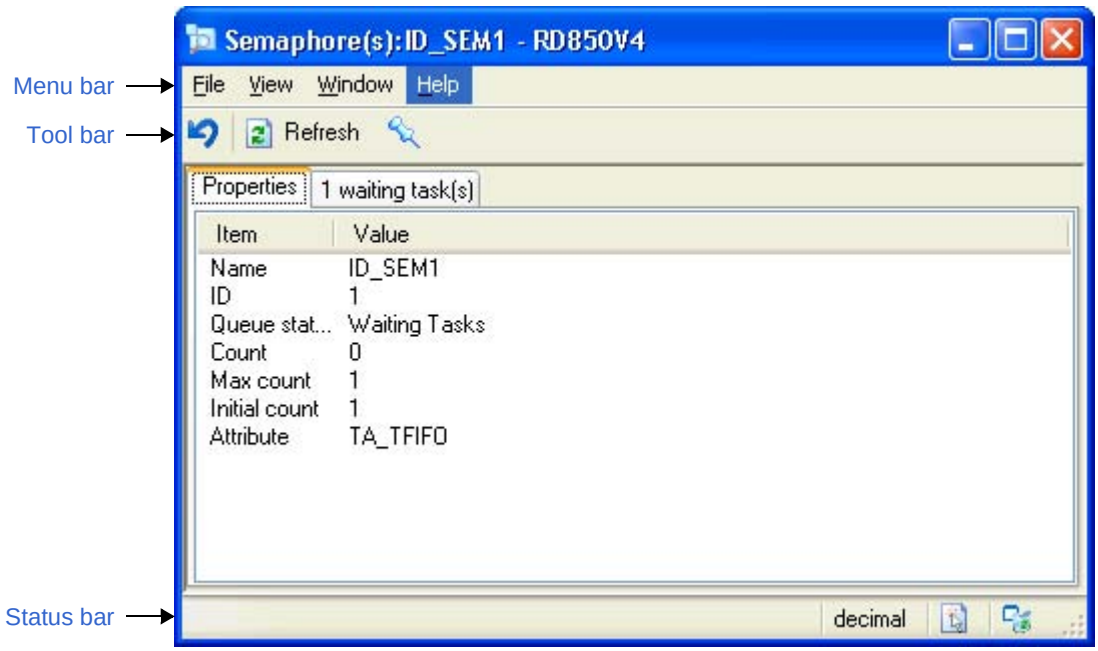
Item	Icon	Function
Message	-	Displays the message on the window status. A message dialog box will also be displayed in the case of the Question Message, Warning Message, and Operation Error.
Progress bar		Displays the percentage of the displayed contents update process that has been completed.
Radix notation	decimal hexadecimal	Displays the radix notation for numeric values. The radix notation can be switched between hexadecimal and decimal by clicking the label.
Status update mode	 (automatically)  (manually)	Displays the current status update mode in the window. The status update mode can be switched between the automatic update and manual update by clicking each icon.
Connection status	 online  offline	Indicates the status of connection with the debugger.

Properties window

This window is opened by double-clicking an arbitrary object displayed in the List view area of the Main window, and displays detailed information on the selected object.

Among the items displayed, the current value of specific items can be changed in this window.

Figure 5-9 Properties Window



This section describes the following items:

- Menu bar
- Tool bar
- Status bar
- Caution
- Displayed contents of each object and current value change method
  - [Task(s)] window
  - [Semaphore(s)] window
  - [Eventflag(s)] window
  - [Data queue(s)] window
  - [Mailbox(s)] window
  - [Mutex(s)] window
  - [Timer queue] window
  - [Ready queue(s)] window
  - [Fixed-sized memory pool(s)] window
  - [Variable-sized memory pool(s)] window
  - [Cyclic handler(s)] window
  - [CPU exception handler(s)] window

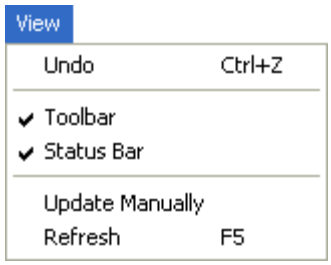
- [Interrupt handler(s)] window
- [Extended service call routine(s)] window
- [Idle routine] window
- [System] window
- [Max value] window
- [Memory area(s)] window

Menu bar

(a) [File] menu

Close	Closes this window.

(b) [View] menu

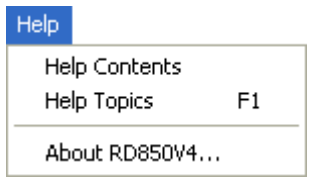


Undo	Restores the status before change. The status before clicking the Refresh button or selecting [Refresh] in the [View] menu cannot be restored. This item is not available in property windows that do not have the status change function (such as [Data queue(s)] window and [Mailbox(s)] window). Same operation as button on the toolbar.
Toolbar	Switches displaying and hiding the toolbar. The toolbar is displayed by checking this item.
Status Bar	Switches displaying and hiding the status bar. The status bar is displayed by checking this item.
Update Manually	Switches the status update mode (automatic update or manual update) in the window. By turning on this menu, manual update (the displayed contents are not updated when a break occur is the debugger) is set. It can also be switched by clicking the icon on the Status bar (/).
Refresh	Updates the displayed contents in the window. Same operation as Refresh button on the toolbar.

(c) [Window] menu

Always on Top	Specifies whether to fix the window display in the front. The window is always displayed in the front by turning on this item. Same operation as  button on the toolbar.
Cascade	Specifies whether to display all the property windows overlapped. By turning on this menu, all the property windows are displayed being overlapped by gradually shifting their X and Y coordinates at constant intervals, based on the coordinates of the Main window.
Tile Vertically	Specifies whether to arrange all the property windows vertically. By turning on this menu, all the property windows are displayed being arranged vertically in the entire screen display area.
Tile Horizontally	Specifies whether to arrange all the property windows horizontally. By turning on this menu, all the property windows are displayed being arranged horizontally in the entire screen display area.
Close Manually	Switches the window discard mode (automatic discard or manual discard). By turning on this menu, manual discard (the window is not closed even if the corresponding object is deleted) is set. It can also be switched by clicking the icon on the Status bar ( / ).

(d) [Help] menu



Help Contents	Opens the RD850V4 online help.
Help Topics	Searches for topics in the RD850V4 online help.
About RD850V4...	Opens the [About RD850V4] dialog box.

Tool bar

This is a button group that enables execution of frequently used commands via a single click.

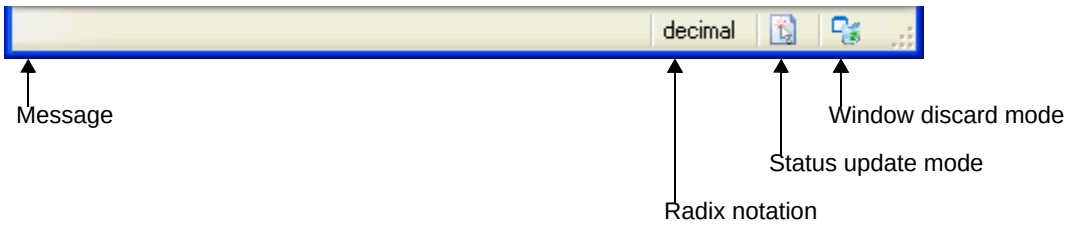
Table 5-23 Tool Bar of Properties Window

Button	Function
	Restores the status before change. The status before clicking the  button or selecting [Refresh] in the [View] menu cannot be restored. This item is not available in property windows that do not have the status change function (such as [Data queue(s)] window and [Mailbox(s)] window). Same operation as [View] menu -> [Undo] item.
	Updates the displayed contents in the window. Same operation as [View] menu -> [Refresh] item.
	Always displays the window in the front. Same operation as [Window] menu -> [Always on Top] item.

Status bar

The following shows the status bar in this window.

Figure 5-10 Status Bar of Properties Window



The functions of each item are as follows.

Table 5-24 Items Displayed on Status Bar: Properties Window

Item	Icon	Function
Message	-	Displays the message on the window status. A mes sage dialog box will also be displayed in the case of the Question Message, Warning Message, and Operation Error, message dialog box.
Radix notation	decimal hexadecimal	Displays the radix notation for numeric values. The radix notation can be switched between hexadecimal and decimal by clicking the label.
Status update mode	 (automatically)  (manually)	Displays the current status update mode in the window. The status update mode can be switched between the automatic update and manual update by clicking each icon.

Item	Icon	Function
Window discard mode	 (automatically)  (manually)	Displays the current window discard mode in the window. The window discard mode can be switched between the automatic discard and manual discard by clicking each icon.

Caution

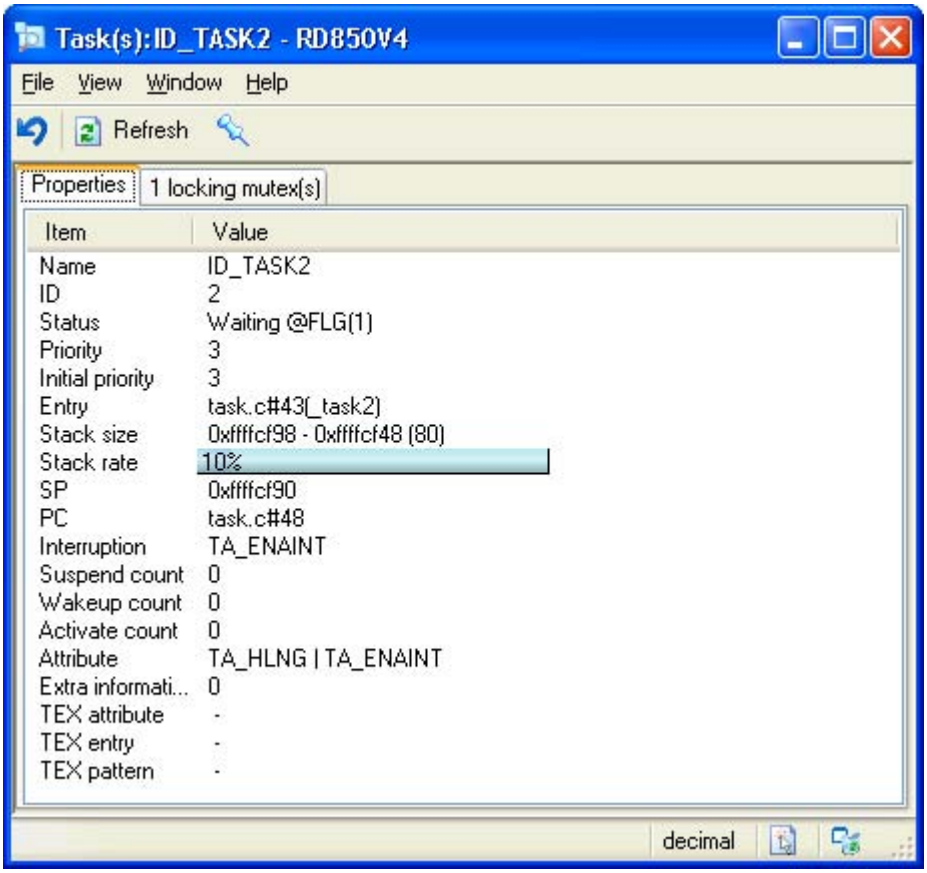
- Basically, the object status change function is not available when the current system status is the CPU locked state. If the current system status is the CPU locked state, only the "CPU locked state" item in the [System] window can be changed.
- Change to the current values is not reflected just by inputting values to the relevant text box. To update the current value, it is necessary to click the  button or select the [View] menu -> [Refresh].

[Task(s)] window

This window is opened by double-clicking an arbitrary task displayed in the [Task(s)] tab in the Main window, and displays detailed information on the selected task.

Among the items displayed, the current values of Status, Priority, Suspend count, Wakeup count, and Activate count can be changed in this window.

Figure 5-11 [Task(s)] Window



This section describes the following items:

- Explanation of each area
- Current value change method
- Displaying of task source

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target task.

The current values of items marked with a circle in the Change column can be changed. See "Current value change method" for details on how to change the current value.

Table 5-25 Items Displayed on [Properties] Tab: [Task(s)] Window

<table>
<tr><th>Change</th><th>Item</th><th>Contents</th></tr>
<tr><td></td><td>Name</td><td>Displays the name of the task.
This item is displayed only when the name is specified as an ID in the system configuration file.</td></tr>
<tr><td></td><td>ID</td><td>Displays the ID of the task.</td></tr>
<tr><td>O</td><td>Status</td><td>Displays the current state of the task.
This item is displayed in the following format.
state @ waiting resource (ID) & additional information

There are following types of task statuses.
<table>
<tr><td>Dormant</td><td>DORMANT state</td></tr>
<tr><td>Ready</td><td>READY state</td></tr>
<tr><td>Running</td><td>RUNNING state</td></tr>
<tr><td>Waiting</td><td>WAITING state</td></tr>
<tr><td>Suspended</td><td>SUSPENDED state</td></tr>
<tr><td>Waiting-Suspended</td><td>WAITING-SUSPENDED state</td></tr>
<tr><td>Non-Existent</td><td>State out of RX850V4 control</td></tr>
</table>
If a task is in the WAITING state or WAITING-SUSPENDED state, the waiting resource type and the target object ID will be displayed additionally.
There are following types of waiting resources.
<table>
<tr><td>SEM</td><td>Waiting state for a semaphore</td></tr>
<tr><td>FLG</td><td>Waiting state for an eventflag</td></tr>
<tr><td>SDTQ</td><td>Sending waiting state for a data queue</td></tr>
<tr><td>RDTQ</td><td>Receiving waiting state for a data queue</td></tr>
<tr><td>MBX</td><td>Waiting state for a mailbox</td></tr>
<tr><td>MTX</td><td>Waiting state for a mutex</td></tr>
<tr><td>MPF</td><td>Waiting state for a fixed-sized memory pool</td></tr>
<tr><td>MPL</td><td>Waiting state for a variable-sized memory pool</td></tr>
<tr><td>SLP</td><td>Sleeping state</td></tr>
<tr><td>DLY</td><td>Delayed state</td></tr>
</table>
The following additional information may also be displayed, depending on the task status.
<table>
<tr><td>TMO</td><td>Waiting with timeout</td></tr>
<tr><td>PRI</td><td>Wait queue is in priority order.</td></tr>
<tr><td>TEX</td><td>Task exception handling being performed</td></tr>
</table></td></tr>
<tr><td>O</td><td>Priority</td><td>Displays the current priority of the task.</td></tr>
<tr><td></td><td>Initial priority</td><td>Displays the initial priority of the task.</td></tr>
</table>

<table>
<tr><th>Change</th><th>Item</th><th>Contents</th></tr>
<tr><td></td><td>Entry</td><td>Displays the start address of the task.
The display format varies as follows, depending on the load module generation condition.
- With debug information:
File name # Line number (Symbol name)
- With symbol information:
Address (Symbol name)
- Without symbol information:
Address</td></tr>
<tr><td></td><td>Stack size</td><td>Displays the task stack size (in bytes).
This item is displayed in the following format.
Bottom address - Top address (size)</td></tr>
<tr><td></td><td>Stack rate</td><td>Displays the percentage of the consumed task stack amount with the progress bar.</td></tr>
<tr><td></td><td>SP</td><td>Displays the stack pointer.</td></tr>
<tr><td></td><td>PC</td><td>Displays the current PC.
The display format of this item is the same as that of [Entry].</td></tr>
<tr><td></td><td>Interruption</td><td>Displays the task interrupt status (enable/disable of maskable interrupt acknowledgment).
There are following types of task interrupt statuses.
<table><tr><td>TA_ENAINT</td><td>Acknowledgment of maskable interrupt is enabled.</td></tr><tr><td>TA_DISINT</td><td>Acknowledgment of maskable interrupt is disabled.</td></tr></table></td></tr>
<tr><td>O</td><td>Suspend count</td><td>Displays the suspension count of the task.</td></tr>
<tr><td>O</td><td>Wakeup count</td><td>Displays the wakeup request count of the task.</td></tr>
<tr><td>O</td><td>Activate count</td><td>Displays the activation request count of the task.</td></tr>
</table>

<table>
<tr><th>Change</th><th>Item</th><th>Contents</th></tr>
<tr><td></td><td>Attribute</td><td>Displays the attribute of the task.
There are following types of task attributes.
<table><tr><td colspan="2">[Coding language]</td></tr><tr><td>TA_HLNG</td><td>Start a processing unit through a C language interface.</td></tr><tr><td>TA_ASM</td><td>Start a processing unit through an assembly language interface.</td></tr><tr><td colspan="2">[Initial activation status]</td></tr><tr><td>TA_ACT</td><td>Task is activated after the creation.</td></tr><tr><td colspan="2">[Task type]</td></tr><tr><td>TA_RSTR</td><td>Restricted task</td></tr><tr><td colspan="2">[Preempt acknowledge status]</td></tr><tr><td>TA_DISPREEMPT</td><td>Acknowledgment of preempt is disabled when the task moves from the DORMANT to the READY state.</td></tr><tr><td colspan="2">[Initial interrupt status]</td></tr><tr><td>TA_ENAINT</td><td>Acknowledgment of maskable interrupt is enabled.</td></tr><tr><td>TA_DISINT</td><td>Acknowledgment of maskable interrupt is disabled.</td></tr></table></td></tr>
<tr><td></td><td>Extra information</td><td>Displays the extended information of the task.</td></tr>
<tr><td></td><td>TEX attribute</td><td>Displays the attribute of the task exception handling routine.
This item is displayed only when task exception handling routines are registered to the task.
There are following types of task exception handling routine attributes.
<table><tr><td colspan="2">[Coding language]</td></tr><tr><td>TA_HLNG</td><td>Start a processing unit through a C language interface.</td></tr><tr><td>TA_ASM</td><td>Start a processing unit through an assembly language interface.</td></tr><tr><td colspan="2">[Current state]</td></tr><tr><td>TTEX_ENA</td><td>Task exception enabled state</td></tr><tr><td>TTEX_DIS</td><td>Task exception disabled state</td></tr></table></td></tr>
<tr><td></td><td>TEX entry</td><td>Displays the task exception handling routine start address.
This item is displayed only when task exception handling routines are registered to the task.
The display format of this item is the same as that of [Entry].</td></tr>
<tr><td></td><td>TEX pattern</td><td>Displays the pending exception code.
This item is displayed only when task exception handling routines are registered to the task.</td></tr>
</table>

(b) [*n* locking mutex(s)] tab

The items listed in the following table will be displayed as the mutex information of the target task.
"*n*" is the variable that indicates the total number of mutexes locked by the target task.

Figure 5-12 [*n* locking mutex(s)] Tab: [Task(s)] Window

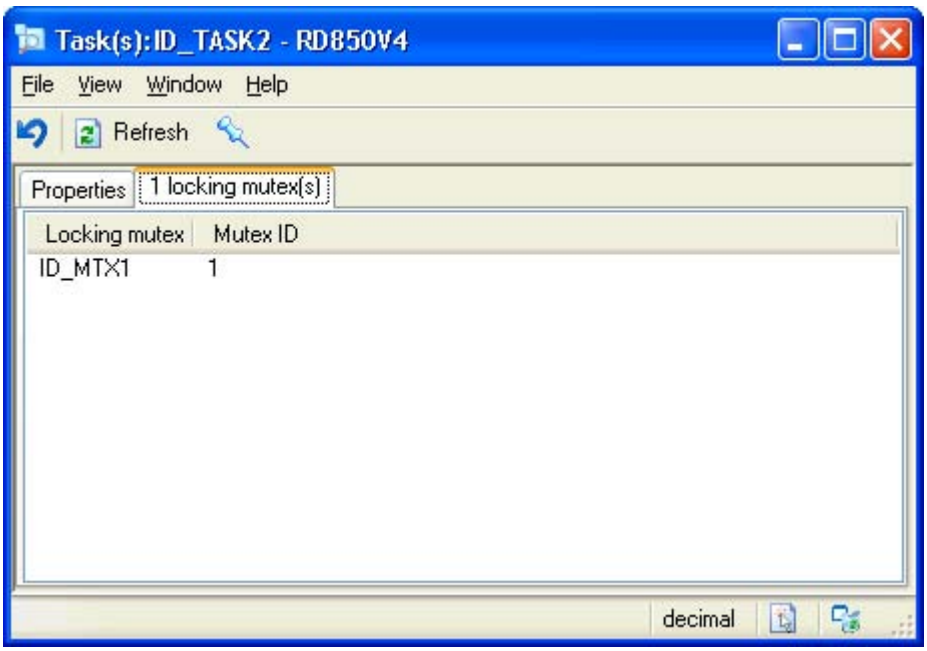


Table 5-26 Items Displayed on [*n* locking mutex(s)] Tab: [Task(s)] Window

Item	Contents
Locking mutex	Displays the mutex name. This item is displayed only when the name is specified as an ID in the system configuration file.
Mutex ID	Displays the mutex ID.

Current value change method

The current value can be changed by inputting/selecting numeric values to the text box/drop-down list that is opened when the relevant item in this window is double clicked.

After changing the current value, the change will be reflected to the target system by clicking the Refresh button or by selecting [Refresh] in the [View] menu.

Displaying of task source

The source of the relevant task can be displayed in the debugger's Source window by double-clicking the [Entry] item. The source corresponding to the relevant PC value can also be displayed by double-clicking the [PC] item.

If no debug information is included in the target load module, the Assemble window, instead of the Source window, will be opened.

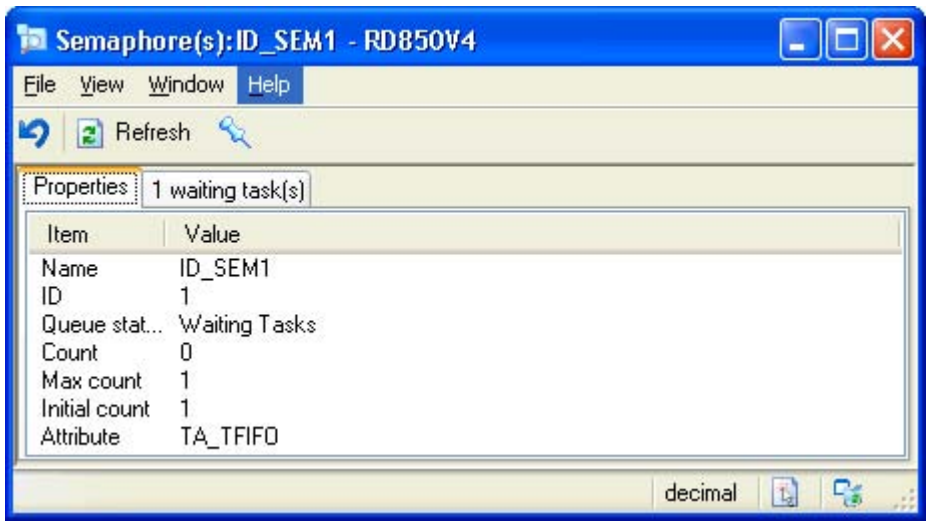
[Caution] If a debugger other than one made by NEC Electronics is used, this function (displaying of task source) may not operate normally.

[Semaphore(s)] window

This window is opened by double-clicking an arbitrary semaphore displayed in the [Semaphore(s)] tab in the Main window, and displays detailed information on the selected semaphore.

Among the items displayed, the current value of Count can be changed in this window.

Figure 5-13 [Semaphore(s)] Window



This section describes the following items:

- Explanation of each area
- Current value change method

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target semaphore.

The current values of items marked with a circle in the Change column can be changed. See "Current value change method" for details on how to change the current value.

Table 5-27 Items Displayed on [Properties] Tab: [Semaphore(s)] Window

Change	Item	Contents
	Name	Displays the name of the semaphore. This item is displayed only when the name is specified as an ID in the system configuration file.
	ID	Displays the ID of the semahpore.
	Queue status	Displays the wait queue status. The following types of wait queue statuses are available. Empty: No tasks waiting Waiting Tasks: A task is waiting
O	Count	Displays the current resource count of the semaphore.
	Max count	Displays the maximum resource count of the semaphore.

Change	Item	Contents	
	Initial count	Displays the initial resource count of the semaphore.	
	Attribute	Displays the attribute of the semaphore. There are following types of semaphore attributes (task queuing methods).	
		TA_TFIFO	Task wait queue is in FIFO order.
		TA_TPRI	Task wait queue is in task priority order.

(b) [*n* waiting task(s)] tab

The items listed in the following table will be displayed as information on tasks waiting for the target semaphore. "*n*" is the variable that indicates the total number of tasks queued to the target semaphore wait queue.

Figure 5-14 [*n* waiting task(s)] Tab: [Semaphore(s)] Window

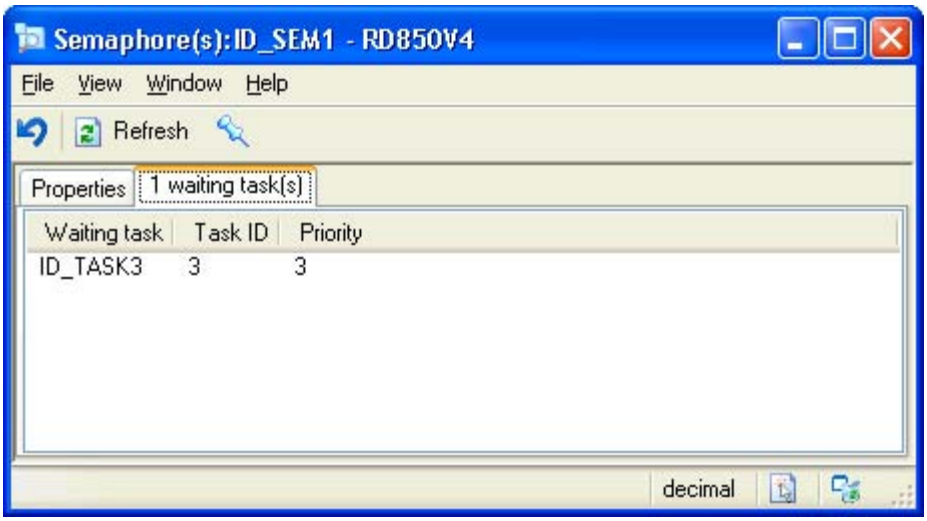


Table 5-28 Items Displayed on [*n* waiting task(s)] Tab: [Semaphore(s)] Window

Item	Contents
Waiting task	Displays the name of the waiting task. This item is displayed only when the name is specified as an ID in the system configuration file.
Task ID	Displays the ID of the waiting task.
Priority	Displays the priority of the waiting task.

Current value change method

The current value can be changed by inputting/selecting numeric values to the text box/drop-down list that is opened when the relevant item in this window is double clicked.

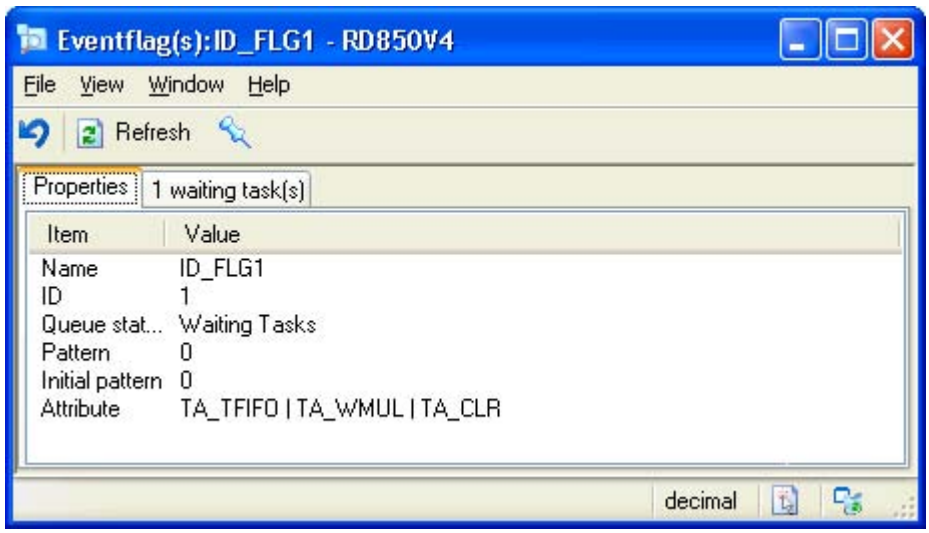
After changing the current value, the change will be reflected to the target system by clicking the Refresh button or by selecting [Refresh] in the [View] menu.

[Eventflag(s)] window

This window is opened by double-clicking an arbitrary eventflag displayed in the [Eventflag(s)] tab in the Main window, and displays detailed information on the selected eventflag.

Among the items displayed, the current value of Pattern can be changed in this window.

Figure 5-15 [Eventflag(s)] Window



This section describes the following items:

- Explanation of each area
- Current value change method

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target eventflag.

The current values of items marked with a circle in the Change column can be changed. See "Current value change method" for details on how to change the current value.

Table 5-29 Items Displayed on [Properties] Tab: [Eventflag(s)] Window

Change	Item	Contents
	Name	Displays the name of the eventflag. This item is displayed only when the name is specified as an ID in the system configuration file.
	ID	Displays the ID of the eventflag.
	Queue status	Displays the wait queue status. The following types of wait queue statuses are available. Empty: No tasks waiting Waiting Tasks: A task is waiting
O	Pattern	Displays the current bit pattern of the eventflag.
	Initial pattern	Displays the initial bit pattern of the eventflag.

Change	Item	Contents
	Attribute	Displays the attribute of the eventflag. There are following types of eventflag attributes. [Queuing method] TA_TFIFO: Task wait queue is in FIFO order. TA_TPRI: Task wait queue is in task priority order. [Queuing count] TA_WSGL: Only one task is allowed to be in the waiting state for the eventflag. TA_WMUL: Multiple tasks are allowed to be in the waiting state for the eventflag. [bit pattern clear] TA_CLR: Bit pattern is cleared when a task is released from the waiting state for that eventflag.

(b) [*n* waiting task(s)] tab

The items listed in the following table will be displayed as information on tasks waiting for the target eventflag.
"*n*" is the variable that indicates the total number of tasks queued to the target eventflag wait queue.

Figure 5-16 [*n* waiting task(s)] Tab: [Eventflag(s)] Window

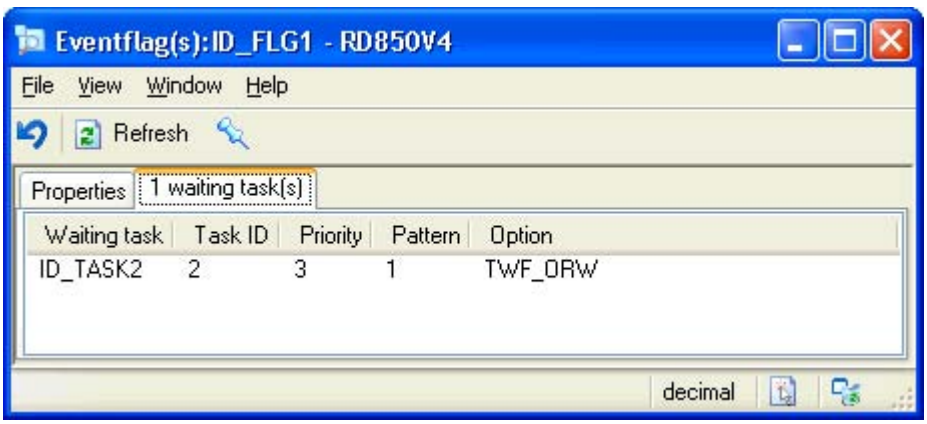


Table 5-30 Items Displayed on [*n* waiting task(s)] Tab: [Eventflag(s)] Window

Item	Contents
Waiting task	Displays the name of the waiting task. This item is displayed only when the name is specified as an ID in the system configuration file.
Task ID	Displays the ID of the waiting task.
Priority	Displays the priority of the waiting task.
Pattern	Displays the wait bit pattern of the waiting task.

Item	Contents	
Option	Displays the wait mode of the waiting task. There are following types of wait options (request conditions) for eventflags.	
	TWF_ANDW	AND waiting condition.
	TWF_ORW	OR waiting condition.

Current value change method

The current value can be changed by inputting numeric values to the text box that is opened when the relevant item in this window is double clicked.

After changing the current value, the change will be reflected to the target system by clicking the 

button or by selecting [Refresh] in the [View] menu.

[Data queue(s)] window

This window is opened by double-clicking an arbitrary data queue displayed in the [Data queue(s)] tab in the Main window, and displays detailed information on the selected data queue.

Figure 5-17 [Data queue(s)] Window

This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target data queue. The current values of the displayed items cannot be changed in this window.

Table 5-31 [Items Displayed on [Properties] Tab: [Data queue(s)] Window

Item	Contents	
Name	Displays the name of the data queue. This item is displayed only when the name is specified as an ID in the system configuration file.	
ID	Displays the ID of the data queue.	
Queue status	Displays the wait queue status. There are following types of wait queue statuses.	
	Empty	No tasks are waiting for transmission/reception.
	Waiting Transmissions	A task is waiting for transmission.
	Waiting Receptions	A task is waiting for reception.
Total count	Displays the capacity of the data queue area.	
Using count	Displays the number of data elements in the data queue.	

Item	Contents
Attribute	Displays the attribute of the data queue. There are following types of data queue attributes (methods for queuing tasks waiting for transmission). TA_TFIFO: Task wait queue is in FIFO order. TA_TPRI: Task wait queue is in task priority order. Tasks waiting for reception are queued in the FIFO order.

(b) [*n* waiting task(s)] tab

The items listed in the following table will be displayed as information on tasks waiting for the target data queue. "*n*" is the variable that indicates the total number of tasks queued to the target data queue wait queue.

Figure 5-18 [*n* waiting task(s)] Tab: [Data queue(s)] Window

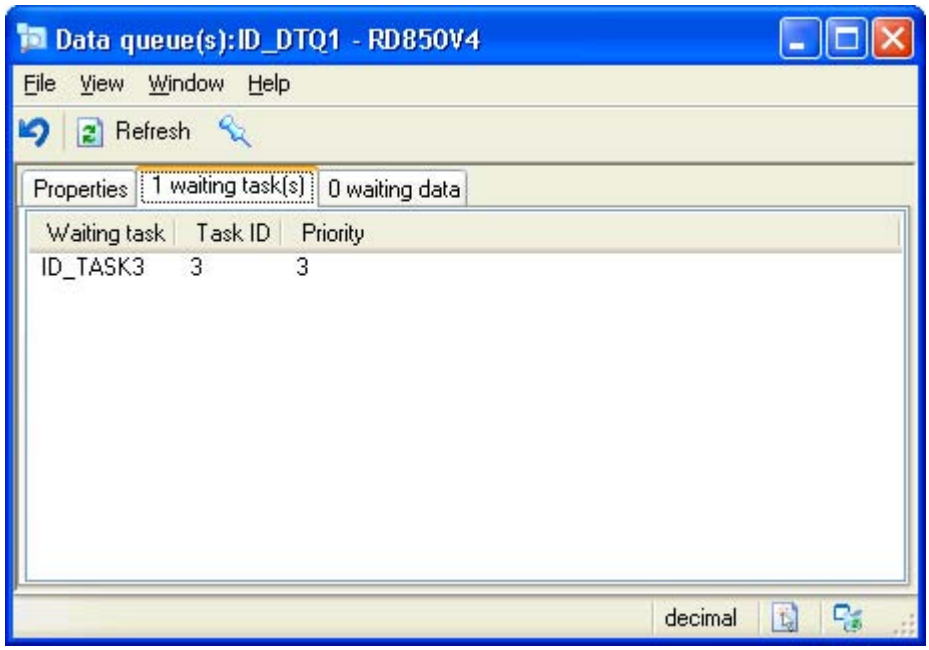


Table 5-32 Items Displayed on [*n* waiting task(s)] Tab: [Data queue(s)] Window

Item	Contents
Waiting task	Displays the name of the waiting task. This item is displayed only when the name is specified as an ID in the system configuration file.
Task ID	Displays the ID of the waiting task.
Priority	Displays the priority of the waiting task.

(c) [*n* waiting data] tab

The items listed in the following table will be displayed as information on data waiting for the target data queue. "*n*" is the variable that indicates the total amount of data queued to the target data queue wait queue.

Figure 5-19 [*n* waiting data] Tab: [Data queue(s)] Window

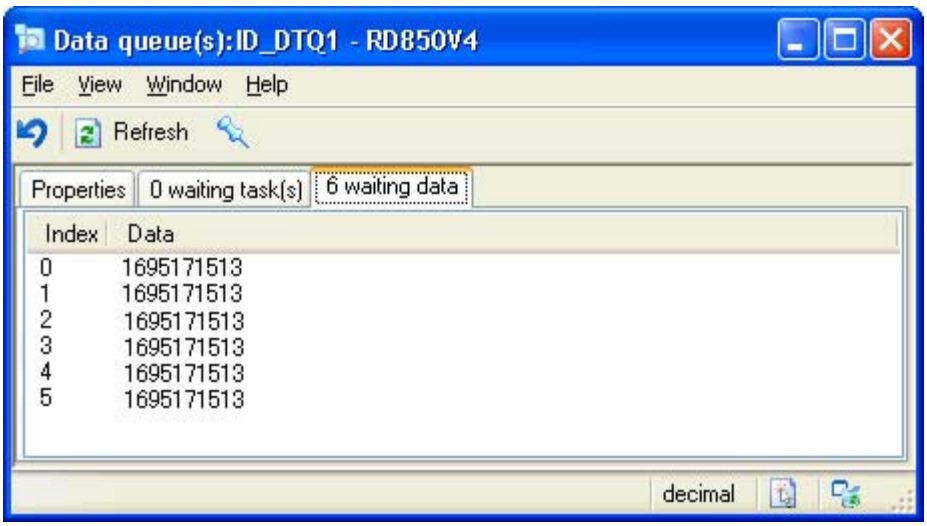


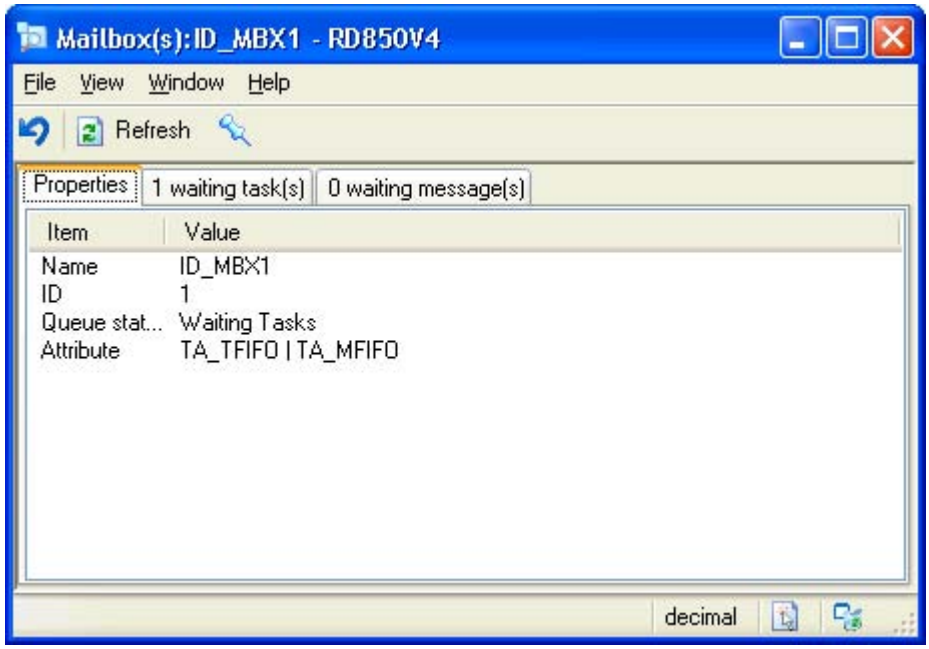
Table 5-33 Items Displayed on [*n* waiting data] Tab: [Data queue(s)] Window

Item	Contents
Index	Displays the data queuing index.
Data	Displays the data contents.

[Mailbox(s)] window

This window is opened by double-clicking an arbitrary mailbox displayed in the [Mailbox(s)] tab in the Main window, and displays detailed information on the selected mailbox.

Figure 5-20 [Mailbox(s)] Window



This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target mailbox.
The current values of the displayed items cannot be changed in this window.

Table 5-34 Items Displayed on [Properties] Tab: [Mailbox(s)] Window

Item	Contents	
Name	Displays the name of the mailbox. This item is displayed only when the name is specified as an ID in the system configuration file.	
ID	Displays the ID of the mailbox.	
Queue status	Displays the wait queue status. There are following types of wait queue statuses.	
	Empty	No tasks/messages waiting.
	Waiting Tasks	A task is waiting.
	Waiting Massages	A message is waiting.

Item	Contents		
Attribute	Displays the attribute of the mailbox. There are following types of mailbox attributes.		
	[Task queuing method]		
	TA_TFIFO	Task wait queue is in FIFO order.	
	TA_TPRI	Task wait queue is in task priority order.	
	[Message queuing method]		
	TA_MFIFO	Task wait queue is in FIFO order.	
	TA_MPRI	Task wait queue is in message priority order.	

(b) [*n* waiting task(s)] tan

The items listed in the following table will be displayed as information on tasks waiting for the target mailbox. "*n*" is the variable that indicates the total number of tasks queued to the target mailbox wait queue.

Figure 5-21 [*n* waiting task(s)] Tab: [Mailbox(s)] Window

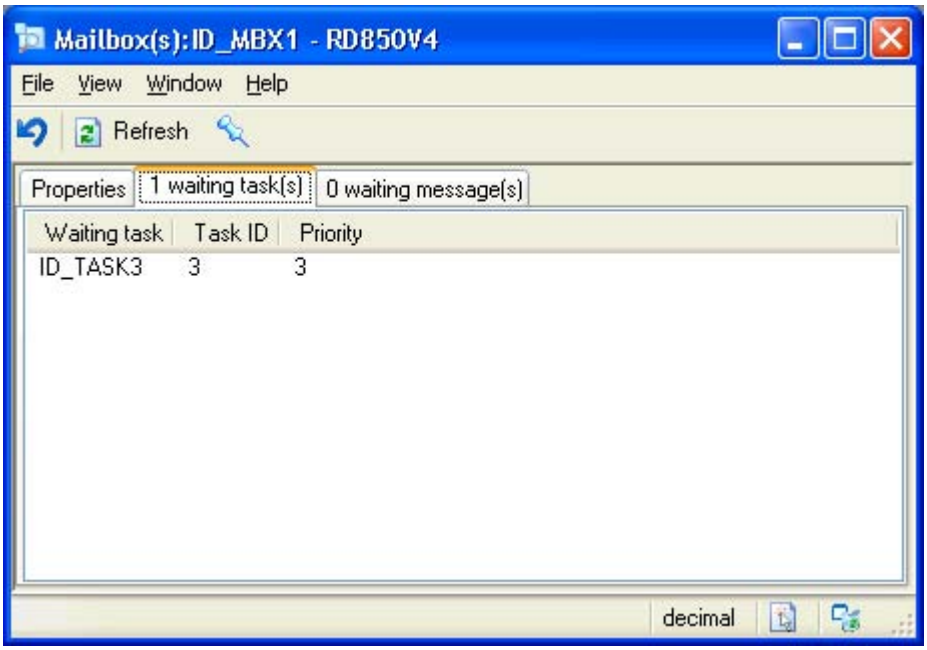


Table 5-35 Items Displayed on [*n* waiting task(s)] Tab: [Mailbox(s)] Window

Item	Contents
Waiting task	Displays the name of the waiting task. This item is displayed only when the name is specified as an ID in the system configuration file.
Task ID	Displays the ID of the waiting task.
Priority	Displays the priority of the waiting task.

(c) [*n* waiting message(s)] tab

The items listed in the following table will be displayed as information on messages waiting for the target mailbox.

"*n*" is the variable that indicates the total number of messages queued to the target mailbox wait queue.

Figure 5-22 [*n* waiting message(s)] Tab: [Mailbox(s)] Window

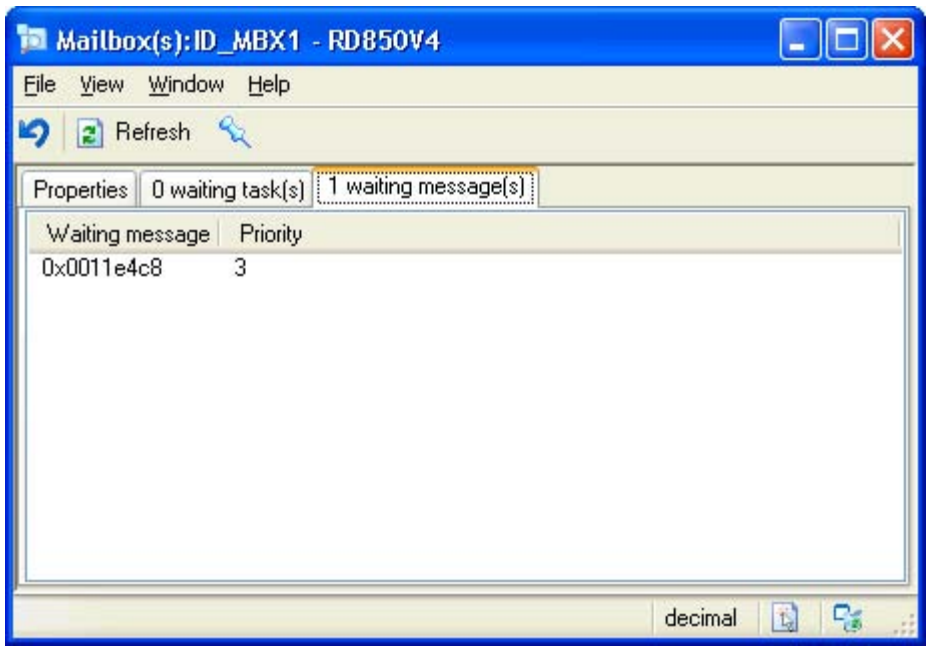


Table 5-36 Items Displayed on [*n* waiting message(s)] Tab: [Mailbox(s)] Window

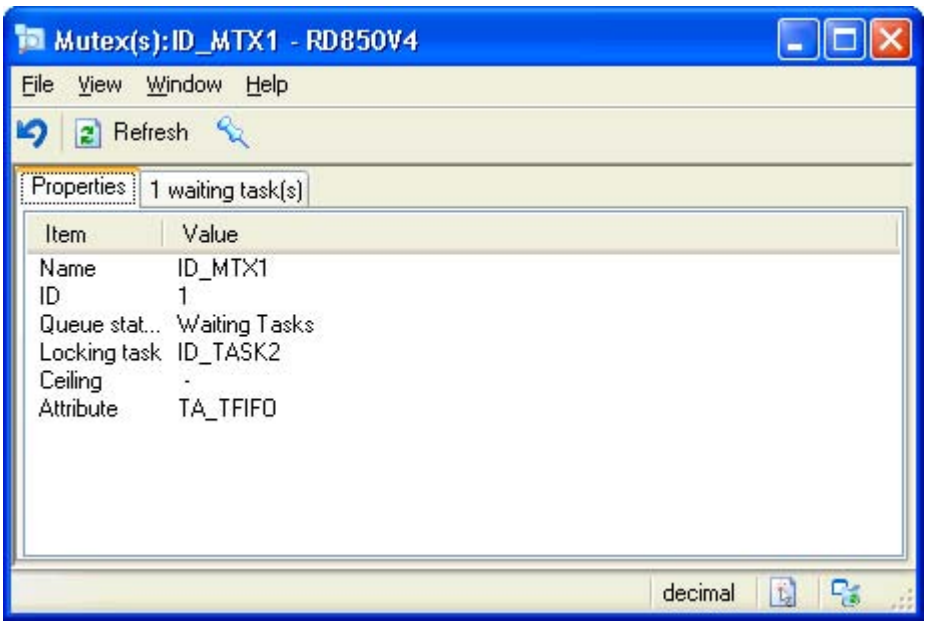
Item	Contents
Waiting message	Displays the start address of the waiting message.
Priority	Displays the priority of the waiting message.

[Mutex(s)] window

This window is opened by double-clicking an arbitrary mutex displayed in the [Mutex(s)] tab in the Main window, and displays detailed information on the selected mutex.

Among the items displayed, the current value of Locking task can be changed in this window.

Figure 5-23 [Mutex(s)] Window



This section describes the following items:

- Explanation of each area
- Current value change method

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target mutex.

The current values of items marked with a circle in the Change column can be changed. See "Current value change method" for details on how to change the current value.

Table 5-37 Items Displayed on [Properties] Tab: [Mutex(s)] Window

Change	Item	Contents
	Name	Displays the name of the mutex. This item is displayed only when the name is specified as an ID in the system configuration file.
	ID	Displays the ID of the mutex.
	Queue status	Displays the wait queue status. There are following types of wait queue statuses. Empty: No tasks waiting Waiting Tasks: A task is waiting

Change	Item	Contents	
O	Locking task	Displays the ID of the task locking the mutex.	
	Ceiling	Always displays "-".	
	Attribute	Displays the attribute of the mutex. There are following types of mutex attributes (task queuing methods).	
		TA_TFIFO	Task wait queue is in FIFO order.
		TA_TPRI	Task wait queue is in task priority order.

(b) [*n* waiting task(s)] tab

The items listed in the following table will be displayed as information on tasks waiting for the target mutex.
"*n*" is the variable that indicates the total number of tasks queued to the target mutex wait queue.

Figure 5-24 [*n* waiting task(s)] Tab: [Mutex(s)] Window

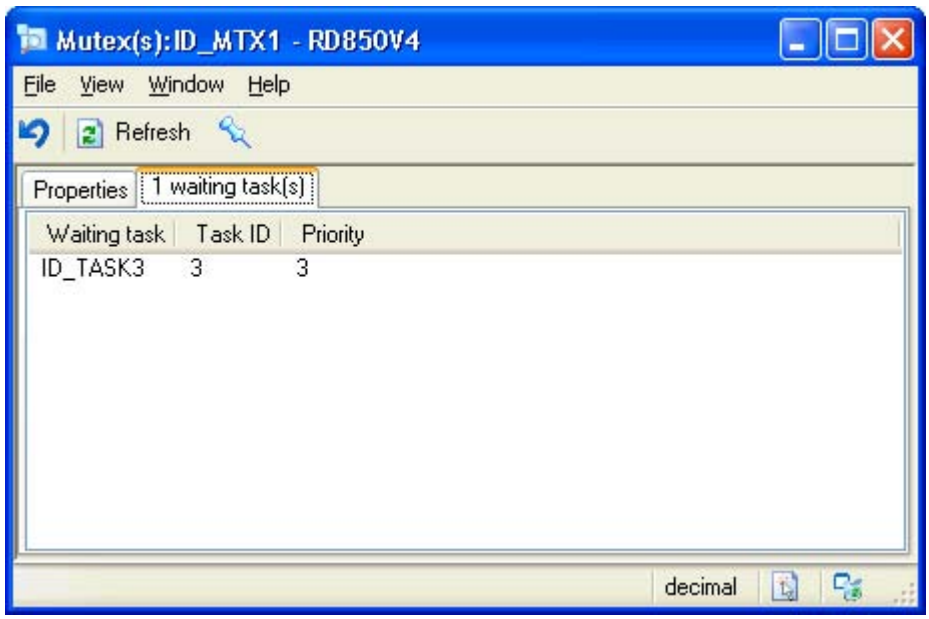


Table 5-38 Items Displayed on [*n* waiting task(s)] Tab: [Mutex(s)] Window

Item	Contents
Waiting task	Displays the name of the waiting task. This item is displayed only when the name is specified as an ID in the system configuration file.
Task ID	Displays the ID of the waiting task.
Priority	Displays the priority of the waiting task.

Current value change method

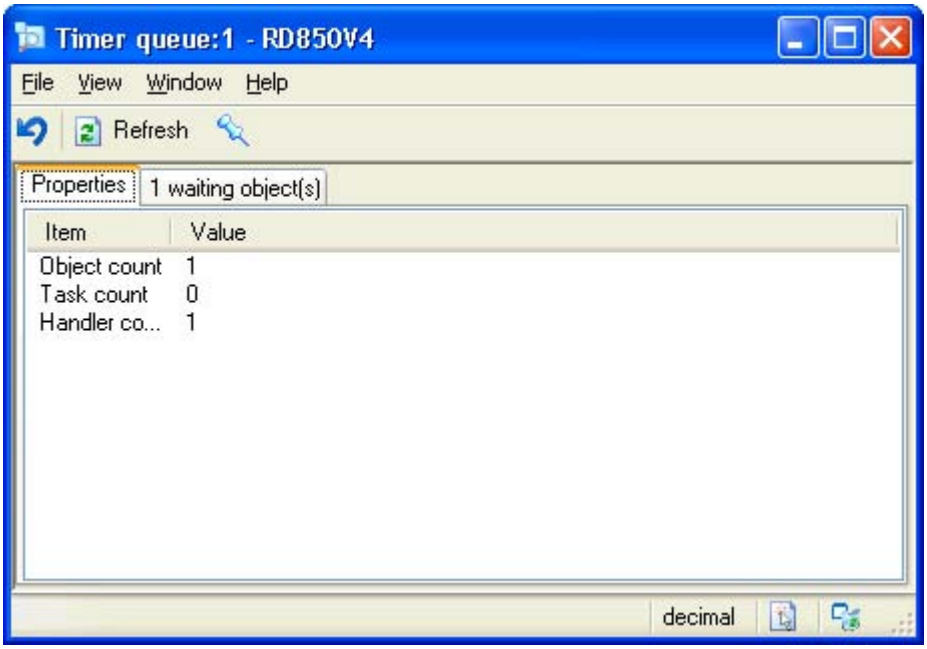
The current value can be changed by selecting numeric values to the drop-down list that is opened when the relevant item in this window is double clicked.

After changing the current value, the change will be reflected to the target system by clicking the Refresh button or by selecting [Refresh] in the [View] menu.

[Timer queue] window

This window is opened by double-clicking an arbitrary timer queue displayed in the [Timer queue] tab in the Main window, and displays detailed information on the selected timer queue.

Figure 5-25 [Timer queue] Window



This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target timer queue. The current values of the displayed items cannot be changed in this window.

Table 5-39 Items Displayed on [Properties] Tab: [Timer queue] Window

Item	Contents
Object count	Displays the total number of objects (tasks and cyclic handlers) queued to the timer queue.
Task count	Displays the total number of tasks queued to the timer queue.
Handler count	Displays the total number of cyclic handlers queued to the timer queue.

(b) [*n* waiting object(s)] tab

The items listed in the following table will be displayed as information on objects waiting for the target timer queue.

"*n*" is the variable that indicates the total number of objects queued to the target timer queue.

Figure 5-26 [*n* waiting object(s)] Tab: [Timer queue] Window

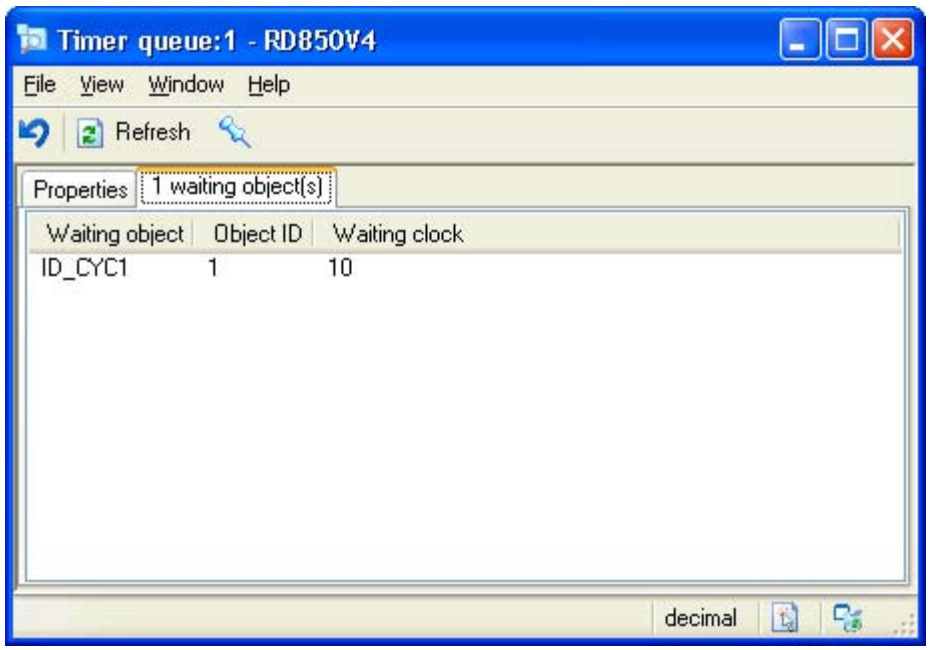


Table 5-40 Items Displayed on [*n* waiting object(s)] Tab: [Timer queue] Window

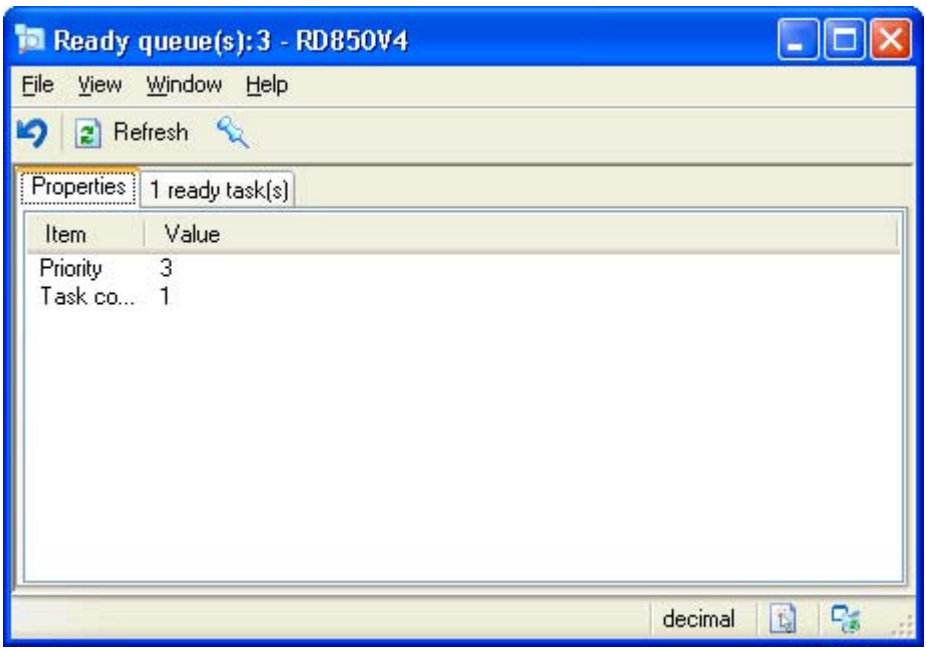
Item	Contents
Waiting object	Displays the name of the waiting object. This item is displayed only when the name is specified as an ID in the system configuration file.
Object ID	Displays the ID of the waiting object.
Waiting clock	Displays the remaining time until the task is released from the wait state with timeout or a cyclic handler is activated next (unit: msec).

[Ready queue(s)] window

This window is opened by double-clicking an arbitrary priority displayed in the [Ready queue(s)] tab in the Main window, and displays detailed information on the ready queue corresponding to the selected priority.

The order of tasks queued to the relevant ready queue can be changed in this window.

Figure 5-27 [Ready queue(s)] Window



This section describes the following items:

- Explanation of each area
- Current value change method

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target ready queue. The current values of items marked with a circle in the Change column can be changed. See "Current value change method" for details on how to change the current value.

Table 5-41 Items Displayed on [Properties] Tab: [Ready queue(s)] Window

Change	Item	Contents
O	Priority	Displays the priority of the tasks.
	Task count	Displays the total number of tasks queued to the ready queue.

(b) [*n* ready task(s)] tab

The items listed in the following table will be displayed as information on executable tasks in the target ready queue.

"*n*" is the variable that indicates the total number of tasks queued to the target ready queue.

Figure 5-28 [*n* ready task(s)] Tab: [Ready queue(s)] Window

Table 5-42 Items Displayed on [*n* ready task(s)] Tab: [Ready queue(s)] Window

Item	Contents
Ready task	Displays the name of the ready task.
Task ID	Displays the ID of the ready task.

Current value change method

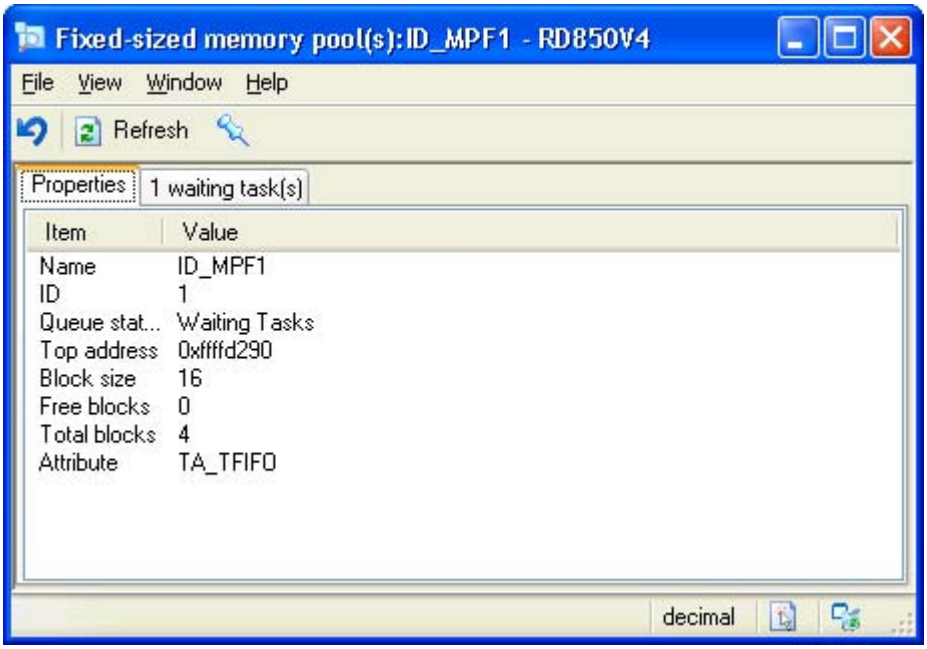
The current value can be changed by inputting numeric values to the text box that is opened when the relevant item in this window is double clicked.

After changing the current value, the change will be reflected to the target system by clicking the Refresh button or by selecting [Refresh] in the [View] menu.

[Fixed-sized memory pool(s)] window

This window is opened by double-clicking an arbitrary fixed-sized memory pool displayed in the [Fixed-sized memory pool(s)] tab in the Main window, and displays detailed information on the selected fixed-sized memory pool.

Figure 5-29 [Fixed-sized memory pool(s)] Window



This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target fixed-sized memory pool.
The current values of the displayed items cannot be changed in this window.

Table 5-43 Items Displayed on [Properties] Tab: [Fixed-sized memory pool(s)] Window

Item	Contents	
Name	Displays the name of the fixed-sized memory pool. This item is displayed only when the name is specified as an ID in the system configuration file.	
ID	Displays the ID of the fixed-sized memory pool.	
Queue status	Displays the wait queue status. The following types of wait queue statuses are available.	
	Empty	No tasks waiting
	Waiting Tasks	A task is waiting
Top address	Displays the start address of the fixed-sized memory pool area.	

Item	Contents	
Block size	Displays the memory block size (in bytes) of the fixed-sized memory pool.	
Free blocks	Displays the number of free memory blocks.	
Total blocks	Displays the total number of memory blocks.	
Attribute	Displays the attribute of the fixed-sized memory pool. There are following types of fixed-sized memory pool attributes (task queuing methods).	
	TA_TFIFO	Task wait queue is in FIFO order.
	TA_TPRI	Task wait queue is in task priority order.

(b) [*n* waiting task(s)] tab

The items listed in the following table will be displayed as information on tasks waiting for the target fixed-sized memory pool.
"*n*" is the variable that indicates the total number of tasks queued to the target fixed-sized memory pool wait queue.

Figure 5-30 [*n* waiting task(s)] Tab: [Fixed-sized memory pool(s)] Window

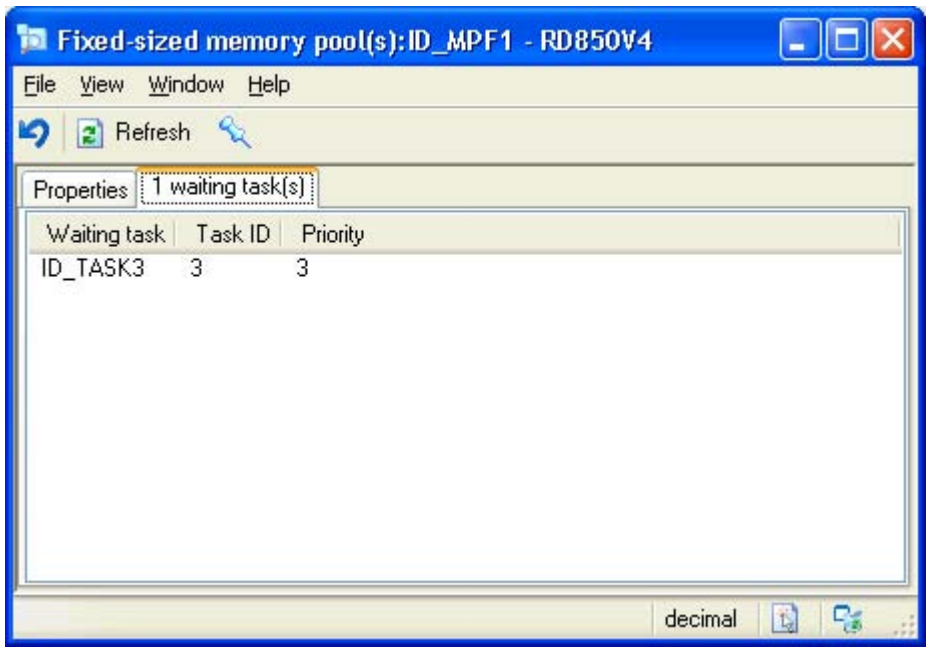


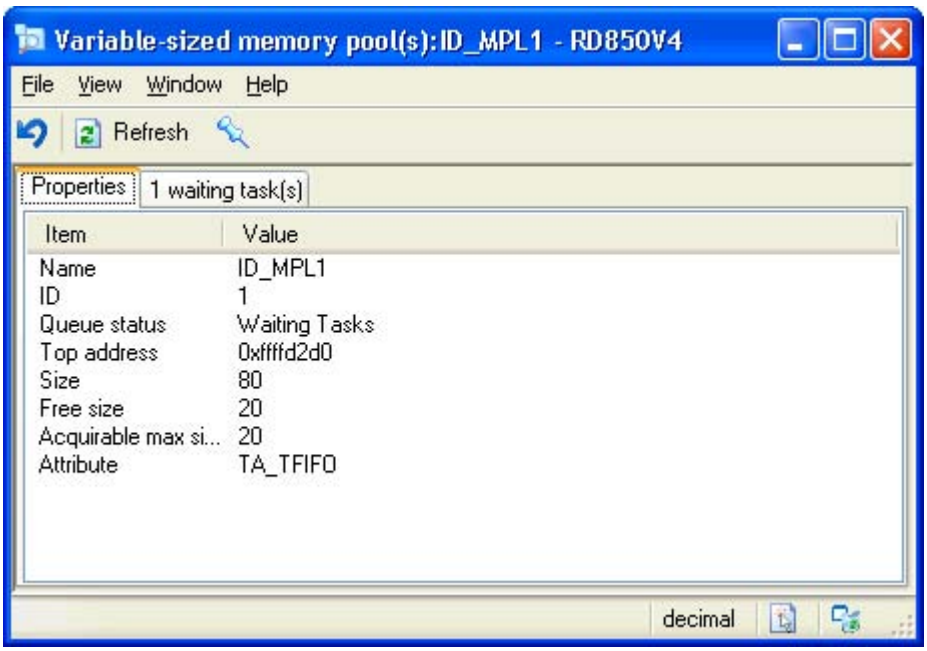
Table 5-44 Items Displayed on [*n* waiting task(s)] Tab: [Fixed-sized memory pool(s)] Window

Item	Contents
Waiting task	Displays the name of the waiting task. This item is displayed only when the name is specified as an ID in the system configuration file.
Task ID	Displays the ID of the waiting task.
Priority	Displays the priority of the waiting task.

[Variable-sized memory pool(s)] window

This window is opened by double-clicking an arbitrary variable-sized memory pool displayed in the [Variable-sized memory pool(s)] tab in the Main window, and displays detailed information on the selected variable-sized memory pool.

Figure 5-31 [Variable-sized memory pool(s)] Window



This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target variable-sized memory pool.
The current values of the displayed items cannot be changed in this window.

Table 5-45 Items Displayed on [Properties] Tab: [Variable-sized memory pool(s)] Window

Item	Contents
Name	Displays the name of the variable-sized memory pool. This item is displayed only when the name is specified as an ID in the system configuration file.
ID	Displays the ID of the variable-sized memory pool.
Queue status	Displays the wait queue status. The following types of wait queue statuses are available. Empty: No tasks waiting Waiting Tasks: A task is waiting

Item	Contents
Top address	Displays the start address of the variable-sized memory pool area.
Size	Displays the size (in bytes) variable-sized memory pool area.
Free size	Displays the total size (in bytes) of free memory blocks.
Acquirable max size	Displays the maximum memory block size (in bytes) available.
Attribute	Displays the attribute of the variable-sized memory pool. There are following types of variable-sized memory pool attributes (task queuing methods). TA_TFIFO: Task wait queue is in FIFO order. TA_TPRI: Task wait queue is in task priority order.

(b) [*n* waiting task(s)] tab

The items listed in the following table will be displayed as information on tasks waiting for the target variable-sized memory pool.

"*n*" is the variable that indicates the total number of tasks queued to the target variable-sized memory pool wait queue.

Figure 5-32 [*n* waiting task(s)] Tab: [Variable-sized memory pool(s)] Window

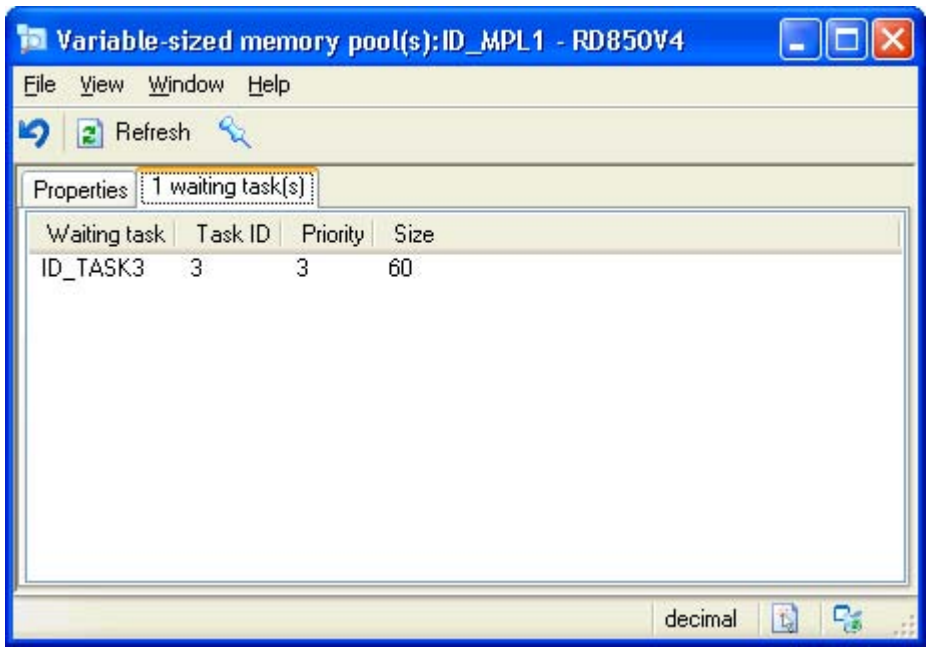


Table 5-46 Items Displayed on [*n* waiting task(s)] Tab: [Variable-sized memory pool(s)] Window

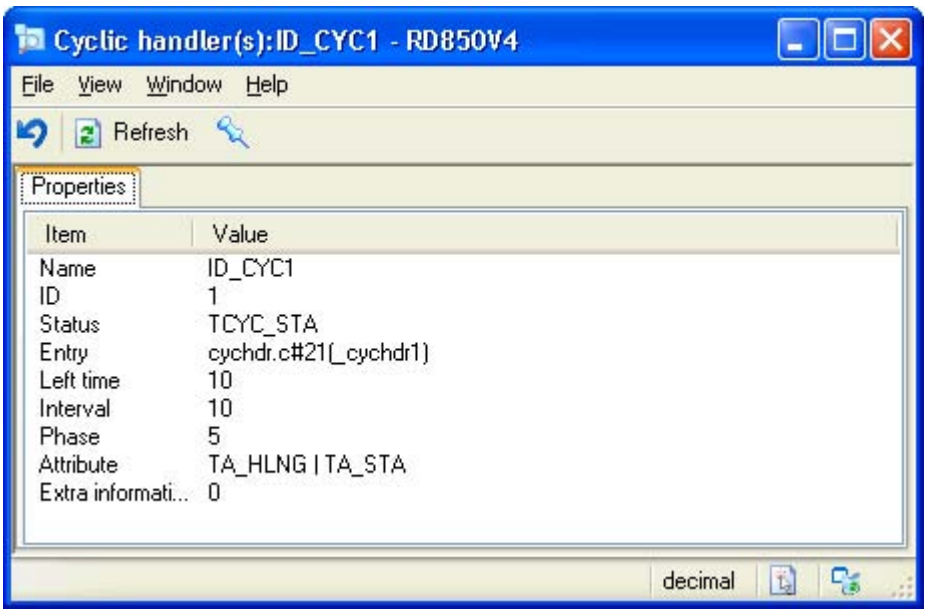
Item	Contents
Waiting task	Displays the name of the waiting task. This item is displayed only when the name is specified as an ID in the system configuration file.
Task ID	Displays the ID of the waiting task.
Priority	Displays the priority of the waiting task.
Size	Displays the memory block size (in bytes) to be acquired.

[Cyclic handler(s)] window

This window is opened by double-clicking an arbitrary cyclic handler displayed in the [Cyclic handler(s)] tab in the Main window, and displays detailed information on the selected cyclic handler.

Among the items displayed, the current value of Status can be changed in this window.

Figure 5-33 [Cyclic handler(s)] Window



This section describes the following items:

- Explanation of each area
- Current value change method

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target cyclic handler. The current values of items marked with a circle in the Change column can be changed. See "Current value change method" for details on how to change the current value.

Table 5-47 Items Displayed on [Properties] Tab: [Cyclic handler(s)] Window

Change	Item	Contents
	Name	Displays the name of the cyclic handler. This item is displayed only when the name is specified as an ID in the system configuration file.
	ID	Displays the ID of the cyclic handler.
O	Status	Displays the current state of the cyclic handler. There are following types of cyclic handler statuses. TCYC_STA: Operational state TCYC_STP: Non-operational state

<table>
<tr><th>Change</th><th>Item</th><th>Contents</th></tr>
<tr><td></td><td>Entry</td><td>Displays the start address of the cyclic handler.
The display format varies as follows, depending on the load module generation condition.
- With debug information:
File name # Line number (Symbol name)
- With symbol information:
Address (Symbol name)
- Without symbol information:
Address</td></tr>
<tr><td></td><td>Left time</td><td>Displays the time (in msec) left before the next activation.</td></tr>
<tr><td></td><td>Interval</td><td>Displays the activation cycle (in msec) of the cyclic handler.</td></tr>
<tr><td></td><td>Phase</td><td>Displays the activation phase (in msec) of the cyclic handler.</td></tr>
<tr><td></td><td>Attribute</td><td>Displays the attribute of the cyclic handler.
There are following types of cyclic handler attributes.
<table><tr><td colspan="2">[Coding language]</td></tr><tr><td>TA_HLNG</td><td>Start a processing unit through a C language interface.</td></tr><tr><td>TA_ASM</td><td>Start a processing unit through an assembly language interface.</td></tr><tr><td colspan="2">[Initial operation status]</td></tr><tr><td>TA_STA</td><td>Operational state</td></tr><tr><td colspan="2">[Whether to save activation phase]</td></tr><tr><td>TA_PHS</td><td>Cyclic handler is activated preserving the activation phase.</td></tr></table></td></tr>
<tr><td></td><td>Extra information</td><td>Displays the extended information of the cyclic handler.</td></tr>
</table>

Current value change method

The current value can be changed by selecting numeric values to the drop-down list that is opened when the relevant item in this window is double clicked.

After changing the current value, the change will be reflected to the target system by clicking the 

button or by selecting [Refresh] in the [View] menu.

[CPU exception handler(s)] window

This window is opened by double-clicking an arbitrary CPU exception handler displayed in the [CPU exception handler(s)] tab in the Main window, and displays detailed information on the selected CPU exception handler.

Figure 5-34 [CPU exception handler(s)] Window

This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target CPU exception handler.
The current values of the displayed items cannot be changed in this window.

Table 5-48 Items Displayed on [Properties] Tab: [CPU exception handler(s)] Window

Item	Contents
Code	Displays the exception code of the CPU exception handler.
Entry	Displays the start address of the CPU exception handler. The display format varies as follows, depending on the load module generation condition. - With debug information: File name # Line number (Symbol name) - With symbol information: Address (Symbol name) - Without symbol information: Address

[Interrupt handler(s)] window

This window is opened by double-clicking an arbitrary interrupt handler displayed in the [Interrupt handler(s)] tab in the Main window, and displays detailed information on the selected interrupt handler.

Figure 5-35 [Interrupt handler(s)] Window

This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target interrupt handler. The current values of the displayed items cannot be changed in this window.

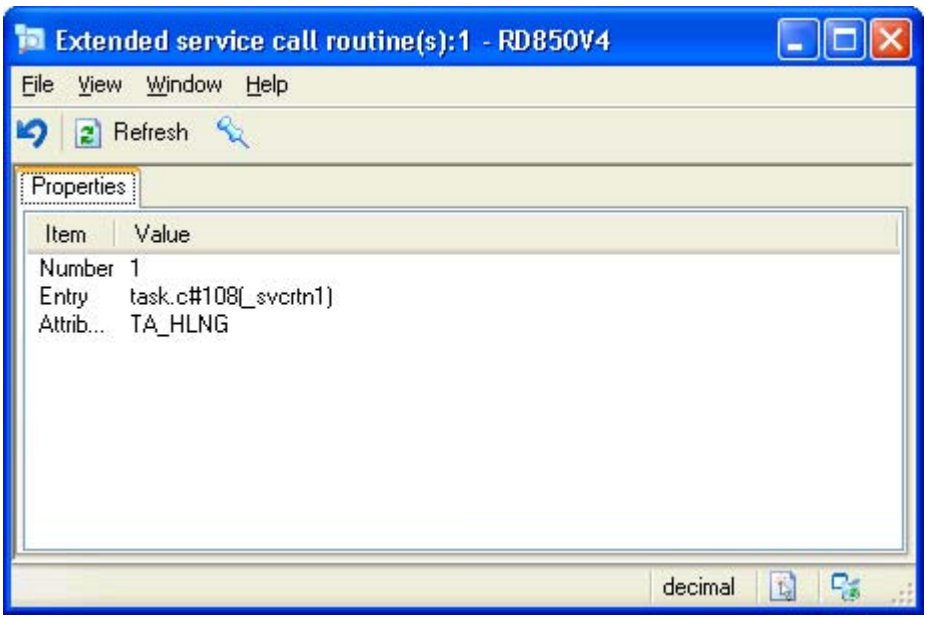
Table 5-49 Items Displayed on [Properties] Tab: [Interrupt handler(s)] Window

Item	Contents	
Code	Displays the exception code of the interrupt handler.	
Entry	Displays the start address of the interrupt handler. The display format varies as follows, depending on the load module generation condition. - With debug information: File name # Line number (Symbol name) - With symbol information: Address (Symbol name) - Without symbol information: Address	
Attribute	Displays the attribute of the interrupt handler. There are following types of interrupt handler attributes (interrupt handler coding language).	
	TA_HLNG	Start a processing unit through a C language interface.
	TA_ASM	Start a processing unit through an assembly language interface.

[Extended service call routine(s)] window

This window is opened by double-clicking an arbitrary extended service call routine displayed in the [Extended service call routine(s)] tab in the Main window, and displays detailed information on the selected extended service call routine.

Figure 5-36 [Extended service call routine(s)] Window



This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target extended service call routine.
The current values of the displayed items cannot be changed in this window.

Table 5-50 Items Displayed on [Properties] Tab: [Extended service call routine(s)] Window

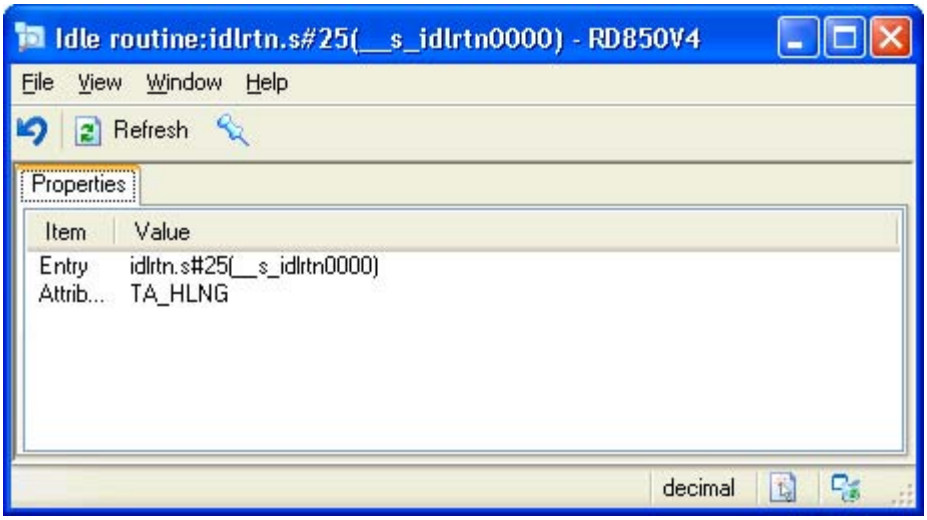
Item	Contents
Number	Displays the function code of the extended service call routine.
Entry	Displays the start address of the extended service call routine. The display format varies as follows, depending on the load module generation condition. - With debug information: File name # Line number (Symbol name) - With symbol information: Address (Symbol name) - Without symbol information: Address

Item	Contents	
Attribute	Displays the attribute of the extended service call rputine. There are following types of extended service call routine attributes (extended service call routine coding language).	
	TA_HLNG	Start a processing unit through a C language interface.
	TA_ASM	Start a processing unit through an assembly language interface.

[Idle routine] window

This window is opened by double-clicking an arbitrary idle routine displayed in the [Idle routine(s)] tab in the Main window, and displays detailed information on the selected idle routine.

Figure 5-37 [Idle routine] Window



This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target idle routine. The current values of the displayed items cannot be changed in this window.

Table 5-51 Items Displayed on [Properties] Tab: [Idle routine] Window

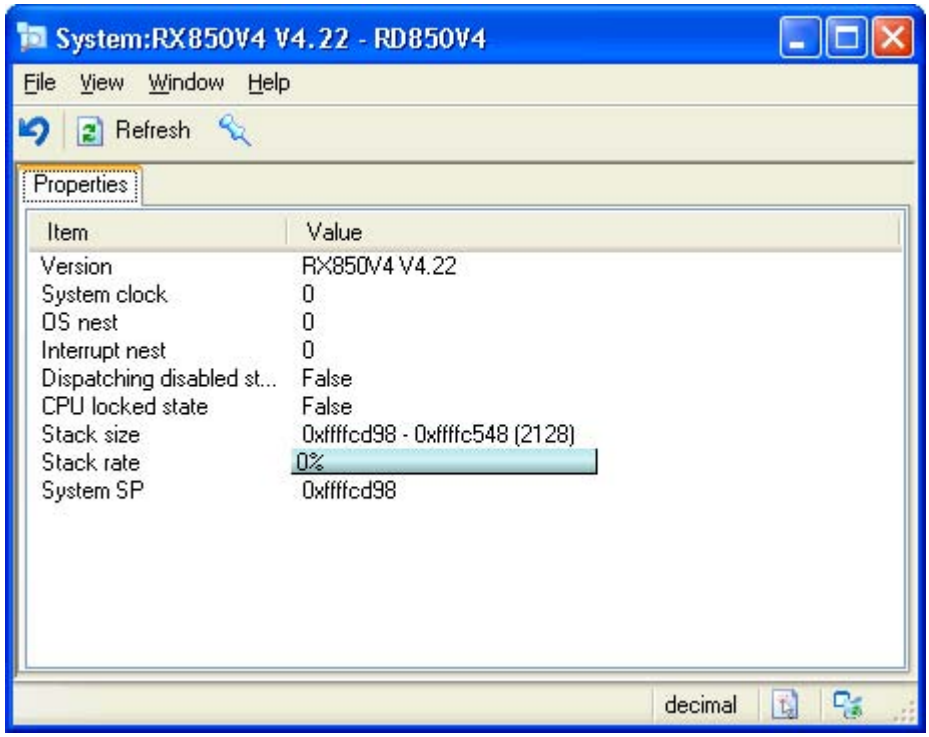
Item	Contents
Entry	Displays the start address of the idle routine. The display format varies as follows, depending on the load module generation condition. - With debug information: File name # Line number (Symbol name) - With symbol information: Address (Symbol name) - Without symbol information: Address
Attribute	Displays the attribute of the idle routine. There are following types of idle routine attributes (idle routine coding language). TA_HLNG: Start a processing unit through a C language interface. TA_ASM: Start a processing unit through an assembly language interface.

[System] window

This window is opened by double-clicking an arbitrary object displayed in the [System] tab in the Main window, and displays detailed information on the selected object.

Among the items displayed, the current values of Dispatching disabled state and CPU locked state can be changed in this window.

Figure 5-38 [System] Window



This section describes the following items:

- Explanation of each area
- Current value change method

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target object.

The current values of items marked with a circle in the Change column can be changed. See "Current value change method" for details on how to change the current value.

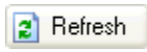
Table 5-52 Items Displayed on [Properties] Tab: [System] Window

Change	Item	Contents
	Version	Displays the real-time OS name and version.
	System clock	Displays the system clock (unit: msec).
	OS nest	Displays the number of system processing nesting levels.
	Interrupt nest	Displays the number of interrupt service nesting levels.

Change	Item	Contents
O	Dispatching disabled state	Displays the system status type (dispatching disabled state or dispatching enabled state). There are following types of system statuses. True: Dispatching disabled state False: Dispatching enabled state
O	CPU locked state	Displays the system status type (CPU locked state or CPU unlocked state). There are following types of system statuses. True: CPU locked state False: CPU unlocked state
	Stack size	Displays the system stack size (in bytes). This item is displayed in the following format. Bottom address - Top address (size)
	Stack rate	Displays the percentage of the consumed system stack amount with the progress bar.
	System SP	Displays the stack pointer.

Current value change method

The current value can be changed by inputting/selecting numeric values to the text box/drop-down list that is opened when the relevant item in this window is double clicked.

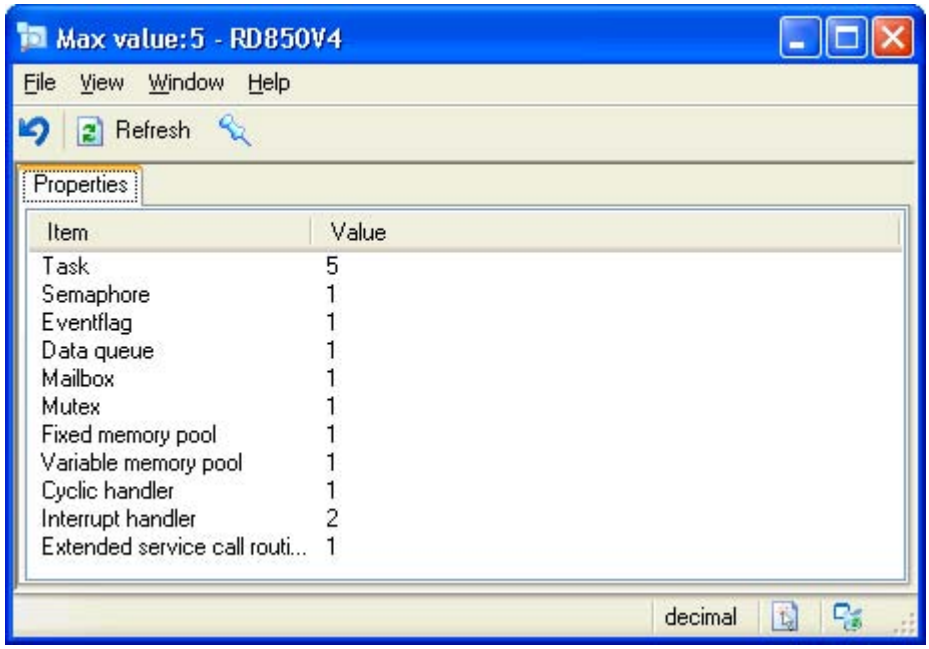
After changing the current value, the change will be reflected to the target system by clicking the 

button or by selecting [Refresh] in the [View] menu.

[Max value] window

This window is opened by double-clicking an arbitrary maximum value information item displayed in the [Max value] tab in the Main window, and displays detailed information on the selected item.

Figure 5-39 [Max value] Window



This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target maximum value. The current values of the displayed items cannot be changed in this window.

Table 5-53 Items Displayed on [Properties] Tab: [Max value] Window

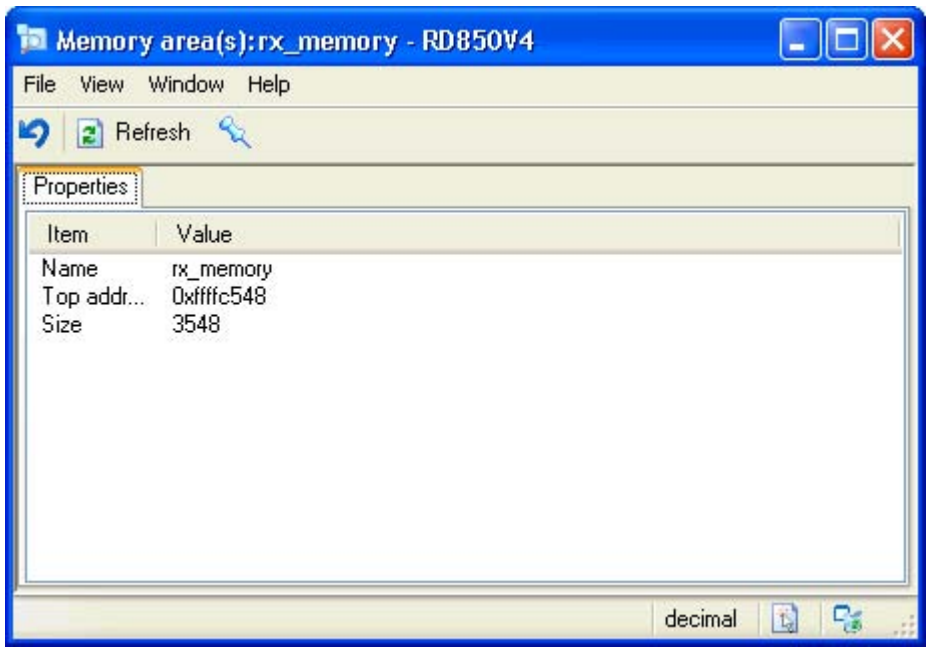
Item	Contents
Task	Displays the maximum number of tasks that can be created.
Semaphore	Displays the maximum number of semaphores that can be created.
Eventflag	Displays the maximum number of eventflags that can be created.
Date queue	Displays the maximum number of data queus that can be created.
Mailbox	Displays the maximum number of mailboxes that can be created.
Mutex	Displays the maximum number of mutexes that can be created.
Fixed memory pool	Displays the maximum number of fixed-sized memory pools that can be created.
Variable memory pool	Displays the maximum number of variable-sized memory pools that can be created.

Item	Contents
Cyclic handler	Displays the maximum number of cyclic handlers that can be created.
Interrupt handler	Displays the maximum number of interrupt handlers that can be registered.
Extended service call routine	Displays the maximum number of extended service call routines that can be registered.

[Memory area(s)] window

This window is opened by double-clicking an arbitrary memory area displayed in the [Memory area(s)] tab in the Main window, and displays detailed information on the selected memory area.

Figure 5-40 [Memory area(s)] Window



This section describes the following items:

- Explanation of each area

Explanation of each area

(a) [Properties] tab

The items listed in the following table will be displayed as the detailed information of the target memory area. The current values of the displayed items cannot be changed in this window.

Table 5-54 Items Displayed on [Properties] Tab: [Memory area(s)] Window

Item	Contents
Name	Displays the name of the section.
Top address	Displays the start address of the section.
Size	Displays the size (in bytes) of the section.

[Options] dialog box

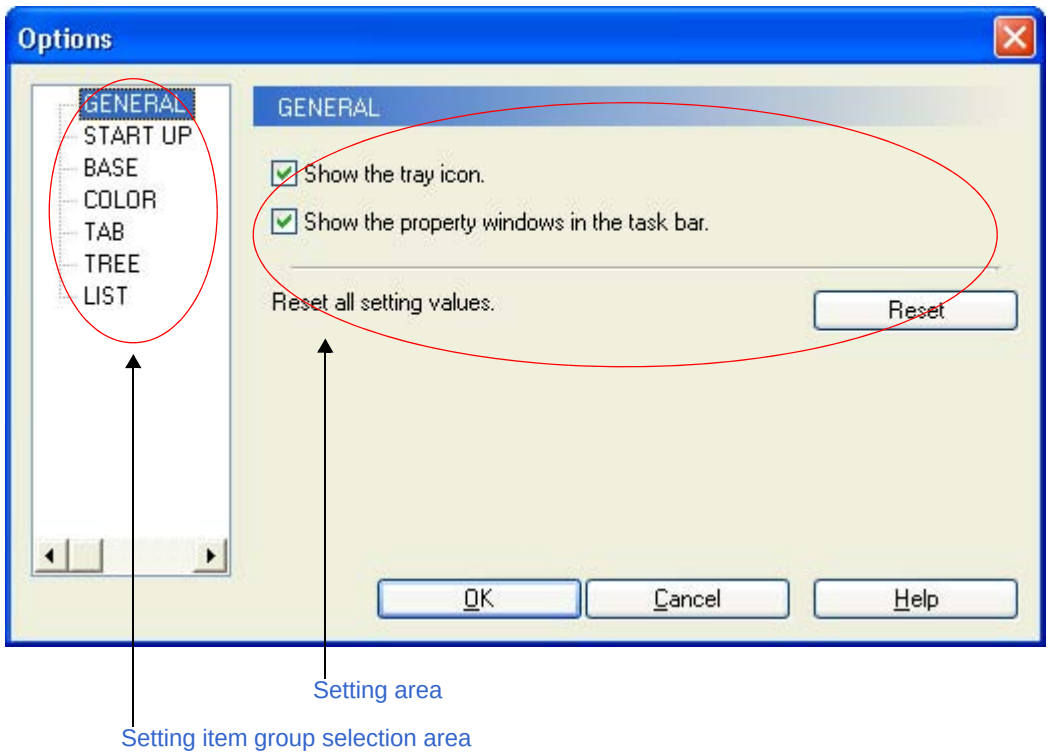
This is the dialog box used to set the basic RD850V4 operation and display formats.

Settings made in this dialog box are saved by clicking the [OK] button, and will be reloaded when the RD850V4 is restarted.

This dialog box can be opened as following:

- Select [Tool] menu -> [Option...] item on the Main window.

Figure 5-41 [Options] Dialog Box



This section describes the following items:

- Explanation of each area
- Function buttons

Explanation of each area

(a) Setting item group selection area

The items whose settings can be changed are grouped based on their types, and the setting items of the group clicked in this area will be displayed in the Setting area.
This area consists of the following groups.

Table5-55 Setting Item Groups

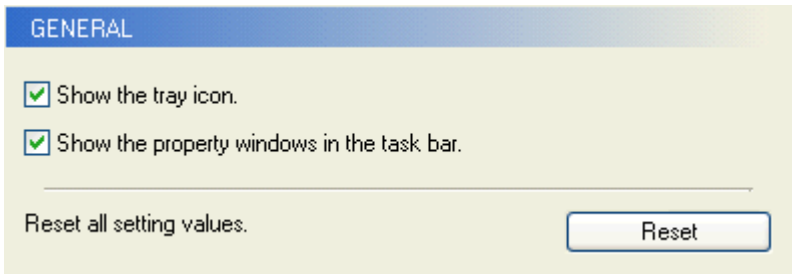
Group Name	Description
GENERAL	Change the general settings to the RD850V4.
Start Up	Change the settings related to the operation when the RD850V4 is started.
BASE	Change the general settings to the windows.
COLOR	Change the display color and background color of components arranged in the window.
TAB	Change the settings related to the display of tab control.
TREE	Change the settings related to tree display control.
LIST	Change the settings related to list display control.

(b) Setting area

Settings of the following items can be changed individually for groups selected in the setting item group selection area.

- GENERAL

Figure 5-42 [Options] Dialog Box: GENERAL



[Show the tray icon.]

Sets whether to display the RD850V4 tray icon to the Windows status area (task tray).

ON	Displays the RD850V4 tray icon in the Windows status area (default).
OFF	Does not display the RD850V4 tray icon in the Windows status area.

[Show the property windows in the task bar.]

Sets whether to minimize the Properties window currently open, as a button on the Windows taskbar.

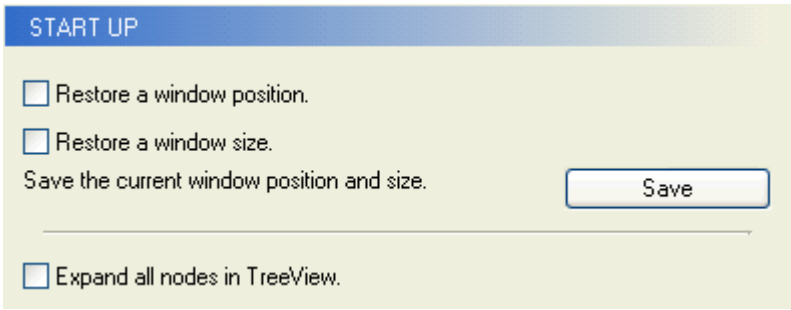
ON	Minimize the Properties window currently open, as a button on the Windows taskbar (default).
OFF	Does not minimize the Properties window currently open, as a button on the Windows taskbar.

[Reset all setting values.]

Restores the default value of all the set values by clicking the [Reset] button.

- Start Up

Figure 5-43 [Options] Dialog Box: Start Up



[Restore a window position.]

Sets whether to restore the Main window position when the RD850V4 is started next time.

ON	Opens the Main window at the position where it was saved.
OFF	Opens the Main window at the default position (default).

[Restore a window size.]

Sets whether to restore the Main window size when the RD850V4 is started next time.

ON	Opens the Main window with the size when it was saved.
OFF	Opens the Main window with the default size (default).

[Save the current window position and size.]

The position and size of the Main window are saved by clicking the [Save] button.
If the [Restore a window position.] or [Restore a window size.] check box is selected, the Main window will be opened at the position when it was saved or with the same size, when the RD850V4 is restarted the next time.

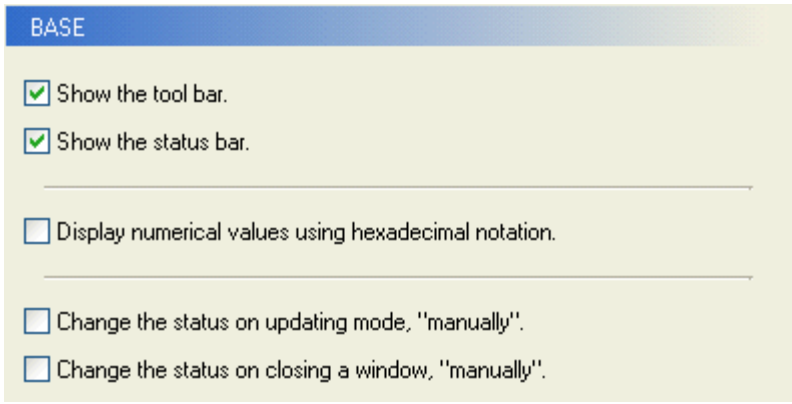
[Expand all nodes in TreeView.]

Sets whether to expand the resource structure in the tree view area in the Main window when the RD850V4 is started.

ON	Displays the expanded resource structure of each node when the RD850V4 is started.
OFF	Displays the collapsed resource structure of each node when the RD850V4 is started (default).

- BASE

Figure 5-44 [Options] Dialog Box: BASE



[Show the tool bar.]

Sets whether to display the toolbar in each window.

ON	Displays the toolbar in each window (default).
OFF	Does not display the toolbar in each window.

[Show the status bar.]

Sets whether to display the status bar in each window.

ON	Displays the status bar in each window (default).
OFF	Does not display the status bar in each window.

[Display numerical values using hexadecimal notation.]

Selects the radix notation for numeric values.

ON	Hexadecimal
OFF	Decimal (default)

[Change the status on updating mode, "manually".]

Selects the window update mode in each window.

For Properties window, this setting will be valid when it is newly opened.

ON	Sets the manual update mode to each window.
OFF	Sets the automatic update to each window (default).

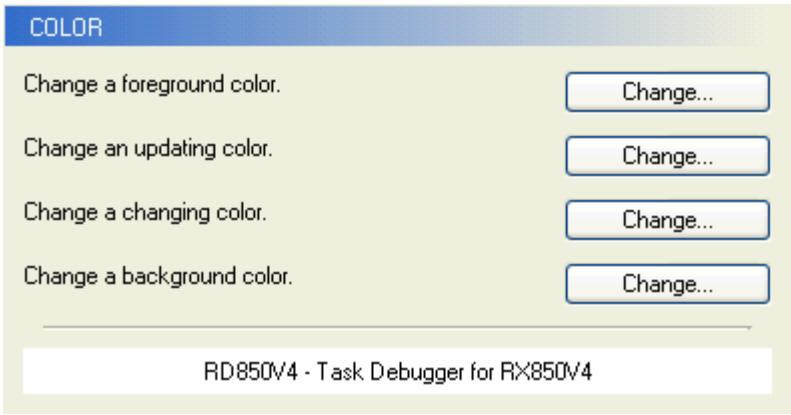
[Change the status on closing a window, "manually".]

Selects the window discard mode when newly opening a property window.

ON	Sets the manual discard mode.
OFF	Sets the automatic discard mode (default).

- COLOR

Figure 5-45 [Options] Dialog Box: COLOR



[Change a foreground color.]
Sets the character display color.
An arbitrary color (default: black) can be specified in the color dialog box that is opened, by clicking the [Change...] button.

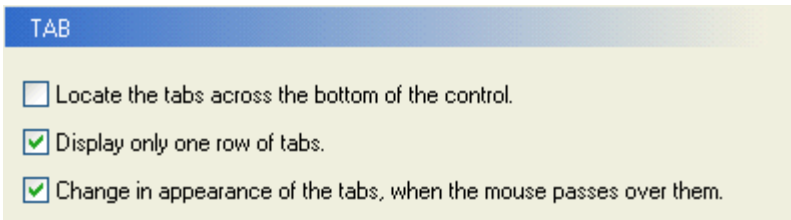
[Change an updating color.]
Sets the color of items whose object status has been updated.
An arbitrary color (default: red) can be specified in the color dialog box that is opened, by clicking the [Change...] button.

[Change a changing color.]
Sets the color of items whose object status has been changed.
An arbitrary color (default: blue) can be specified in the color dialog box that is opened, by clicking the [Change...] button.

[Change a background color.]
Sets the background color for components.
An arbitrary color (default: white) can be specified in the color dialog box that is opened, by clicking the [Change...] button.

- TAB

Figure 5-46 [Options] Dialog Box: TAB



[Locate the tabs across the bottom of the control.]
Sets the position where tabs are placed in a window.

ON	Displays tabs at the bottom of a window.
OFF	Displays tabs at the top of a window (default).

[Display only one row of tabs.]

Sets whether to display tables in one line (scroll mode).

ON	Displays tabs in the scroll mode (default).
OFF	Displays tabs dividing into multiple lines in the display area.

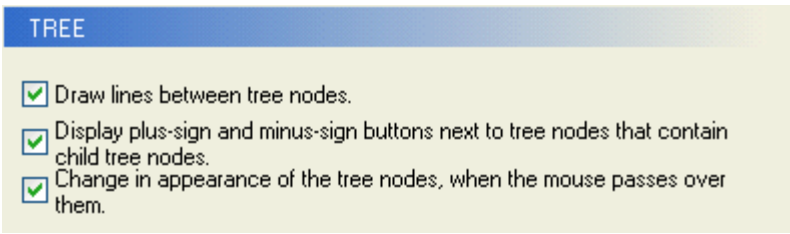
[Change in appearance of the tabs, when the mouse passes over them.]

Sets whether to change the tab appearance when the tab is pointed to by the pointer.

ON	Uses the hot track function for tabs (default).
OFF	Does not use the hot track function for tabs.

- TREE

Figure 5-47 [Options] Dialog Box: TREE



[Draw lines between tree nodes.]

Sets whether to display dotted lines that connect each node in the Tree view frame.

ON	Displays dotted lines that connect each node (default).
OFF	Does not display dotted lines that connect each node.

[Display plus-sign and minus-sign buttons next to tree nodes that contain child tree nodes.]

Sets whether to display the plus/minus sign indicating expanded/collapsed structure in the Tree view frame.

ON	Displays the plus/minus sign in the Tree view frame (default).
OFF	Does not display the plus/minus sign in the Tree view frame.

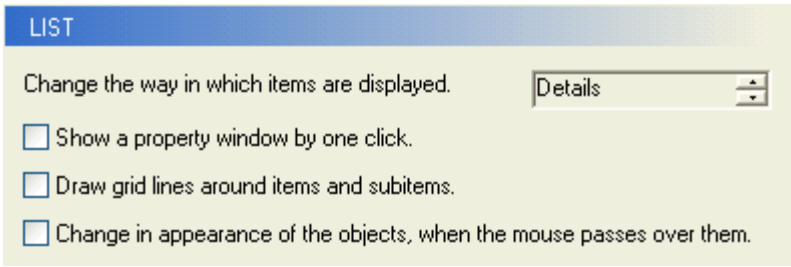
[Change in appearance of the tree nodes, when the mouse passes over them.]

Sets whether to change the node label appearance when the label in the Tree view frame is pointed to by the pointer.

ON	Uses the hot track function for the node label in the Tree view frame (default).
OFF	Does not use the hot track function for the node label in the Tree view frame.

- LIST

Figure 5-48 [Options] Dialog Box: LIST



[Change the way in which items are displayed.]

Sets the display format in the list view area in the Main window.

Large Icons	Displays the objects with large icons.
Small Icons	Displays the objects with small icons.
List	Displays the objects in the list format.
Details	Displays the object list with detailed information (default).

[Show a property window by one click.]

Sets the opening method of Properties window screens.

ON	When an object is clicked, the corresponding property window opens.
OFF	When an object is double-clicked, the corresponding property window opens (default).

[Draw grid lines around items and subitems.]

Sets whether to display the grid lines between the displayed statuses (line/row).

ON	Displays the grid lines between the displayed statuses.
OFF	Does not display the grid lines between the displayed statuses (default).

[Change in appearance of the objects, when the mouse passes over them.]

Sets whether to change the label appearance when the label of a displayed status is pointed to by the pointer.

ON	Uses the hot track function for the label of the displayed status.
OFF	Does not use the hot track function for the label of the displayed status (default).

Function buttons

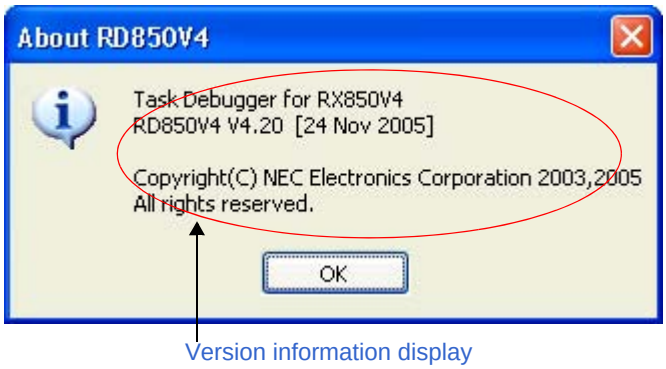
Button	Function
OK	Determines the settings and closes this dialog box.
Cancel	Closes this dialog box without saving the settings.
Help	Displays the help window for this dialog box.

[About RD850V4] dialog box

This dialog box is used to display the version information of the RD850V4.
This dialog box can be opened as following:

- Select [Help] menu -> [About RD850V4...] item on the Main window.

Figure 5-49 [About RD850V4] Dialog Box



This section describes the following items:

- Explanation of each area
- Function buttons

Explanation of each area

(a) Version information display

This area is used to display "the product name, version number of the RD850V4, [date of product build] and copyright year".

Function buttons

Button	Function
OK	Closes this dialog box.

CHAPTER 6 ERROR MESSAGES

6. 1 Error Message Format

Messages output by the RD850V4 are displayed in the message area in the status bar in the Main window, or in the message dialog box shown in Figure 6-1.

In the RD850V4, messages are classified into four types, each of which can be identified by the icon displayed at the top of the message and alphabetic character at the top of the error code.

Figure 6-1 Message Dialog Box Example

Table 6-1 Message Types

Icon	Prefix	Type
	I	Information This message is displayed to report some kind of information.
	Q	Question This message is displayed when some kind of choice is required for the operation.
	W	Warning This message is displayed to report some kind of information.
	E	Operation error This message is displayed when an operating error occurred and execution is not possible.

6. 2 Information Message Lists

The contents displayed as information messages are as follows.
"%s" in each message means a character string that varies depending on the RD850V4 processing.
Information message is the item displayed only in the message area in the status bar in the Main window.

[Caution] This message is displayed when an object is selected in the Main window and the corresponding Properties window is opened.

I0001: The object "%s" is selected.
This message is displayed when the window discard mode is changed in the Properties window.

I0102: Object information is updated <automatically / manually>.
This message is displayed when the radix notation is changed in the Main window or a Properties window.

I0103: A numerical value is displayed using <decimal / hexadecimal> notation.
This message is displayed when the radix notation is changed in the Main window or a Properties window.

I0201: RD850V4 has connected to the debugger.
This message is displayed when the RD850V4 is successfully connected with the debugger.

I0202: RD850V4 has disconnected from the debugger.
This message is displayed when the RD850V4 and the debugger are disconnected.

6. 3 Question Message Lists

The contents displayed as inquiry messages are as follows.
When this message is displayed, selection of the [Yes] or [No] button may be required.

Q0001: Do you wish to disconnect from the debugger?
This message is displayed when [Disconnect] in the [Tool] menu of the Main window is selected.

Q0101: The information currently displayed may be out of date. Do you wish to update it?
This message is displayed when an object status is changed in the Properties window during manual update mode.

6. 4 Warning Message Lists

The contents displayed as warning messages are as follows.
"%s" in each message means a character string that varies depending on the RD850V4 processing.

W0001: The debugger is running.
This message is displayed when an attempt is made to update resource information or to change an object status while the debugger is running.
Resource information can be updated or object statuses can be changed only when the debugger operation has been stopped.

W0002: RX850V4 is not initialized.
This message is displayed when an attempt is made to update resource information or to change an object

status before RX850V4 initialization is completed.
Resource information can be updated or object statuses can be changed only after RX850V4 initialization is completed.

W0003: The object "%s" does not exist.
This message is displayed when an attempt is made to acquire resource information or to change an object status but the target object could not be found.

W0101: RD850V4 cannot be changed, because CPU status is locked.
This message is displayed when an attempt is made to change an object status during the "CPU locked state". Object statuses can be changed only during the "CPU unlocked state".

W0102: RD850V4 cannot be changed, because the "%s" system call was not found.
This message is displayed when a service call required for changing an object status is not linked with the load module.
Object statuses can only be changed by using the load module to which a service call required for status change processing is linked.

W0103: The input value is empty or an illegal numerical value.
This message is displayed when invalid values were specified for object items whose status can be changed.

6. 5 Operation Error Message Lists

The numbers and contents displayed as error messages and their meanings are as follows.

E0001: RD850V4 could not connect to the debugger.
This message is displayed when connecting with the debugger failed.
The RD850V4 and debugger must be connected while the debugger is running.

E0002: RX850V4 is not loaded.
This message is displayed when the RX850V4 failed to acquire information.
The assumed cause is that the RX850V4 is not linked with the load module.

E0101: The state of your selected object is illegal.
This message is displayed when the RD850V4 failed to analyze acquired information.
The assumed cause is that the data structure of the target object is invalid.

E0102: The queue information may be corrupted.
This message is displayed when searching for the queue contents failed.

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